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ON THE
CURATIVE INFLUENCE
OF THE
SOUTHERN COAST OF ENGLAND,
&c. &c.

LONDON :
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ON THE

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CURATIVE INFLUENCE

OF THE

SOUTHERN COAST OF ENGLAND;

ESPECIALLY THAT OF

HASTINGS:

WITH OBSERVATIONS ON

DISEASES

IN WHICH A RESIDENCE ON THE COAST IS

MOST BENEFICIAL.

BY WILLIAM HARWOOD, M.D.

"Tempestatum anni mutationes, et in ipsis anni tempestatibus magnæ mutationes aut frigoris aut caloris, potissimum morbos pariunt."

HIPPOCRATES.

"Ex tempestatibus vero optimæ æquales sunt, sive frigidæ sive calidæ: pessimæ, quæ maximæ variant."

CELSUS.

LONDON:

HENRY COLBURN, NEW BURLINGTON STREET.

1828.

734.



TO
MARSHALL HALL, M.D. F R.S.E.
&c. &c.

MY DEAR FRIEND,

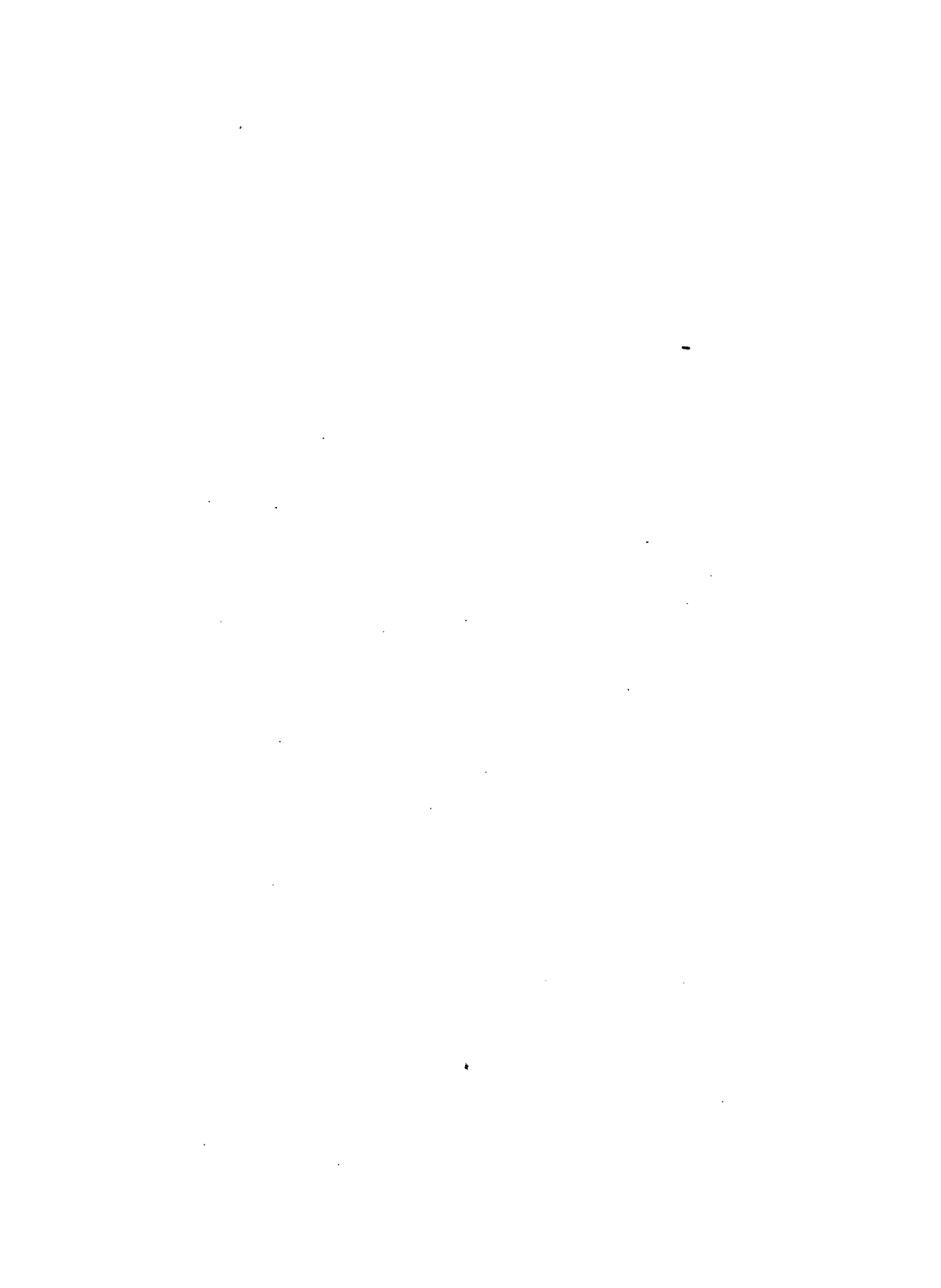
Should you think the present volume calculated to effect its object, that of imparting useful information to the Invalid who may seek the soothing and healthful influence, afforded by the various more picturesque and sheltered parts of our southern Coast ; it will add greatly to the gratification which prompts me to dedicate it to one, whose example, in the patient and vigilant, and, consequently, successful investigation of disease, is so truly worthy of imitation.

Believe me, my dear Friend,

Faithfully yours,

W. HARWOOD.

Wellington Square, Hastings.



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ON THE
CURATIVE INFLUENCE
OF THE
SOUTHERN COAST OF ENGLAND,
&c. &c.

THE invigorating influence which the human constitution usually experiences from a residence on the sea-coast, is generally admitted to exert itself more rapidly than any which is derived from the best directed medicines; and when we duly consider the variety of circumstances which such a residence combines, all of them so highly favourable to a state of health—as the numerous calls it induces on our bodily exertion, the influence it exerts on the due performance of our other physical functions, and the no less important soothing tranquillity which the grander objects of nature are so eminently calculated to afford to the mind; it becomes

by no means surprising, that from the earliest ages, physicians should have eagerly availed themselves of so potent an auxiliary to their means of removing diseases.

The first of these sources of benefit, then, embraces every species of exercise, while those from whence the latter are derived are far more varied; though the refreshing breeze, the moving majesty of the ocean, and the impending cliffs, which seem formed by nature to repel his force, are often amply sufficient to impart, unconsciously, animation, cheerfulness, and elevation to the mind, and arouse in it new interests and energies when oppressed by tedious and severe bodily affliction.

As great variety however exists in the advantages which different coasts offer to the invalid for the improvement of health, the chief of which is derived from aspect, a judicious choice of situation becomes an important consideration. It is obvious also, that in England this is rendered more especially the case, from the great diversity of climate it embraces, and the immediate influence which the latter exerts on the constitution; for in addition to that rapid change, within a few degrees of latitude,

which is peculiar to the temperate zones, the climate of England is no less affected by its insular situation, the very varied nature of its geological characters, and its peculiar position in regard to the widely extended continents of Europe and of Asia on the East, and of the Atlantic Ocean on the West. These by their co-operative influence, tend to render it more diversified than perhaps that of any other kingdom with which we are acquainted; and it is to this variety in its temperature, and its soil, that we are indebted for the growth and development of the amazing number in the species of our vegetable productions, upon so comparatively limited a surface.

The medical peculiarities, if I may so term them, of our coasts, are also more varied in proportion than those of most other countries, having often characters no less distinct than those which distinguish the various watering-places in the more inland districts; thus, whilst some have been selected for the coolness of their summer atmosphere, others have been chosen for their sheltered situation and the mildness and equality of their temperature, and many for other combined conveniences. But the neces-

sity for a judicious choice of situation in disease, though so imperatively demanded in England, was considered of great importance, even among the physicians of antiquity, and such as practised their art in countries far less subject to variation than ours. The opinions however which were then entertained, led them to a selection very different from that which has lately prevailed ; for as it has been our practice to recommend the climate of Italy in consumptive cases, so it was the custom of Celsus, who lived in the most interesting and eventful period of the world, (the commencement of the Christian era,) and of other physicians of ancient Rome, to send from Italy to the coast of Alexandria, such patients as suffered from these diseases ; because, as they state, they were there of far more rare occurrence than in Italy.

I shall now proceed to consider some of those natural causes, which appear to impart to coast situations so especial a claim on our attention in the cure of disease ; and to notice some of those circumstances, which, in this country, seem to recommend the southern as the most eligible we possess, not less from the advantage it derives, in

common with all others, from the influence of the sea, than from its latitude and other peculiarities.

It was observed by Hippocrates, * and Aristotle, †—the former of whom wrote about 400, and the latter 340 years, before the Christian era,—that such islands as are contiguous to continents, have their winters more severe, while those that are removed further from the land, have winters which are warmer and milder.

Thus the fact has been long and well known, that the sea possesses an important power of equalizing the temperature of the air in its vicinity, and that to it is to be assigned, the difference found to exist between the temperature of coasts and that of the interior of extensive continents; which latter possess a far greater range of heat and cold than islands, although the mean temperature be the same in both, and although similarly situated with regard to latitude.

* “Quæ autem insulæ continenti sunt vicinæ, eæ rigidiores habent hyemes, marinæ verò, tepidiores, propterea quòd nives et glacies in continenti perdurant.”

Hippocrates de Aëre, aquis et locis.

† Aristotelis Meteorologia.

Now, to account for this difference, it appears that the impressions of heat, which are imparted by the sun's rays to the surfaces of the waters, and of the earth, are disposed of very differently; that heat which is received on the surface of the land, being slowly admitted, and feebly communicated to the dense earth below, loses much of its intensity by freely imparting it to the circulating air; while on the contrary, such rays of light and heat as fall on the surface of the ocean, without this sudden check to their progress, penetrate the bosom of the deep to a greater or a less depth, in proportion to its transparency. Thus their limits are confined to a few fathoms from the surface, and their influence becomes gradually diffused through this upper stratum of water. From hence, probably, and from that law which ordains that the cooler portions of fluid should remain at a depth proportioned to their coolness, or that of their superior specific gravity, the important result follows—that during the winter half of the year, the temperature of the surface of the sea is greater than the mean temperature of the air,* tending to produce, by the well

* This circumstance, doubtless, when the use of the

known property which heat possesses, of equally diffusing itself through contiguous bodies, that equality in the latter, which can only be expected to be experienced, in this variable climate, in sheltered situations on the coast; situations which, like detached islands, consequently experience comparatively little of that powerful change from summer to winter, which is felt on wide extended continents. Thus I may remark, that on the 8th of January last, when the thermometer stood at 35° on the Hastings beach, I found it rise to 40° on being introduced into the surface-water of the sea; and on the 12th of February, the coldest day of the present year, when it stood, in the same situation, at 28.5 , on immersion, it rose to 39° . *

thermometer was unknown, led to the ancient supposition, that the sea, during the winter, was actually warmer than during the summer: "*Hiesne mare calidius esse.*"—*PLINY*, lib. 2.

* It may not be uninteresting to observe, that although the surface of the water is thus influenced by solar heat, the temperature of the sea, like that of lakes, diminishes in very accurate proportion to their depth; and in some instances, their difference of temperature in different situations,

There is, however, another very efficient cause for the more elevated temperature of the ocean; I allude to the action of its currents, and the succession of its tides, by constantly mixing and combining that surface-water, which has in various latitudes, been differently affected by the solar beams.

Kirwan has given to the sea, between the latitudes 50° and 51° , which may be considered that of the south coast of England, a monthly mean temperature as follows :

January . . . $42^{\circ} . 5$	July $63^{\circ} . 0$
February . . . $44 . 0$	August $62 . 0$
March $50 . 0$	September . $57 . 0$
April $52 . 4$	October . . . $50 . 0$
May $58 . 0$	November . $46 . 0$
June $61 . 0$	December . $44 . 0$

is calculated to excite our astonishment. Thus, when the surface of the Lago Maggiore was nearly as high as 78° , the bottom, at 360 feet, was only 44° . This is about 3 degrees warmer than the water, at similar depths, in our own lakes; whose depth and temperature prevent their ever being frozen over. In the sea also, in latitude 69° , when a thermometer, on the surface, indicated $59\frac{1}{4}^{\circ}$, at 4040 feet below the surface it stood at 32° .

I am however induced to think, that this calculation for the winter months is rather too high; yet if we deduct 3 or 4 degrees for each month, still, the powerful influence which so vast a surface must exert in equalizing the temperature of a superincumbent atmosphere, will be necessarily admitted; and this higher temperature of the sea, I may again remark, becomes therefore one demonstrable cause of the mildness of a coast climate, and one which could not be expected to operate equally far in the interior of the country.

The effects of this cause in moderating the temperature of situations differently exposed to it, are therefore well exemplified by comparison; thus the temperature of Dublin compared with that of Warsaw—the one immediately influenced by that of the sea, the other probably very little affected by it, though both are nearly in the same parallel of latitude, is as given in the subjoined note. *

	North Lat.	Mean Temp. of coldest Month.	Do. of warmest Month.	Mean annual Temp.	Extreme range of the Mean.
* Dublin	53° . 21	37° . 6	60° . 3	48° . 4	22° . 7
Warsaw	52 . 14	27 . 1	70 . 3	48 . 6	43 . 2

Petersburgh again, in lat. 59° . 56, from its situation, is

Although, from the greater transparency and more subtle nature of the air which circulates around us, it is not subject to the same laws in regard to the influence of the sun's rays upon it, as the more dense medium the sea, the air receiving its heat by contact; yet its temperature is equalized, like that of the ocean, by its still more active currents or winds, and the consequence necessarily but little influenced by the ocean, and we consequently find the range of the thermometer as follows :

Mean of coldest Month.	Warmest do.	Mean annual Temp.	Extreme range of the Mean.
8°. 6	65°. 7	38°. 8	57°. 1

But Pekin, which is situated in latitude 39 . 54, or 20 degrees south of Petersburg, probably from the important influence of the extensive Asiatic regions lying to the north and west, and the comparatively trifling equalizing power it derives from the Pacific, suffers a range of temperature still more remarkable, as follows :

Mean coldest Month.	Mean warmest Month.	Mean annual Temp.	Extreme range of the Mean.
24°. 8	84°. 2	54°. 9	59°. 4.

North Cape, on the other hand, although having a latitude of 71° . 0, or 31° . 6 degrees further to the north, from the influence of the ocean, by which it is almost surrounded, experiences a mean temperature, in its coldest month, of only 2° . 7 less than Pekin, it being 22° . 1.

quent perpetual agitation it experiences, those columns of air which are lighter, being displaced by others that are heavier.* One great advantage, therefore, which all nature derives from the prevalence of wind, which is itself produced by inequality in the temperature of the air, is that of equalizing it; and it may be easily conceived that the more constant agitation of the air, as it exists on the sea-coast, and especially one shielded from the more piercing winds, is one of the most important causes of its superior salubrity. During the winter months, we are moreover especially visited by a southerly or south-west wind; as a more northerly frequently prevails during the sum-

* Yet when air is confined and stationary, as within wells, or the shafts of mines, it partakes of the temperature of the surrounding soil, and the superincumbent atmosphere. During summer, it is therefore warmest at the surface; but in very severe weather, on the contrary, the upper stratum being reduced far below that of the earth, it sinks to the bottom, often carrying down, with its superior cold, such quantities of snow, that the bottoms of some mines and caverns are perpetually covered with it; as in the case of the celebrated silver mine of Kongsberg in Norway, an open cavern 300 feet in depth, and 30 in width.

mer, tending in the most admirable manner to modify the degrees of heat and cold, and thus diminish the extreme impressions of each.

Another important mode by which the temperature of all situations is more or less influenced, is derived from the earth, which, during the summer months, even when clouds prevail, is generally two or three degrees warmer than the air, but many more when it receives the solar beams; for this superfluous heat is chiefly absorbed by the air, and with a degree of rapidity proportionate to the velocity with which it sweeps over the warmed surface. But the surface of the earth varies materially in its capacity for absorbing and retaining the solar heat, no less by its peculiar composition and chemical qualities, than its inclination, or angle at which it receives the sun's rays; whence its equalizing power on the temperature of the air is materially influenced.* It is therefore suffi-

* It is very rare for frost to penetrate its surface a foot in depth, except it be a peculiarly rocky soil, on which it exerts a deeper influence; yet by the experiments of Saussure, it has been ascertained, that a thermometer, at thirty-one feet deep in the ground, was more than two degrees

ciently obvious, that coasts inclined to the south, which receive and absorb all the genial heat of summer, and that which the more feeble rays of a wintry sun can bestow, have their temperature affected by these causes.

The increased temperature of our southern and western coasts, has also been thought to be influenced by the agency of the stream of warm water which flows towards Europe, from the gulf of Mexico, occasioned by a material difference between the level of the gulf, and that of the Atlantic Ocean. An accumulation of heat from this source, was particularly observed quite across the Atlantic, as far as the European shores, by Dr. Franklin, in his passage from the United States

higher in winter than in summer, which accession of temperature the ground had still preserved from the influence of the preceding summer heat. But the temperature of the earth at forty or fifty feet, where it is not liable to be thus influenced, is nearly the same at all seasons, and continues steadily to preserve it at any depth we may proceed below. On the contrary, its variation in temperature above, depends on the changes the atmosphere experiences, its heat increasing, as we descend during the severity of the winter months, and diminishing, during the heat of summer.

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from the bay of Biscay, which is thought to be dependent on a similar penning up of its waters, and is stated to flow generally north-west by west.

As such then appear to be some of the principal causes of the peculiarity of our coast temperature, I shall now more particularly notice the vicinity of Hastings.

HASTINGS COAST.

There is no part of our southern coast whose name has been rendered more familiar to us than this—from its immediate connexion with the Norman conquest, one of the most eventful periods of our history ; but as there are many other circumstances relating to its peculiar locality, no less worthy of public attention, I shall mention some of those natural advantages it possesses, which are so obviously calculated to exert an influence beneficial to health ; and which, in connexion with others, arising from its proximity to the Metropolis, Brighton, Tonbridge-Wells, and Dover, have justly obtained for it so high a curative reputation. The town is bounded on the north and east by some of the most elevated land in the county of

to France, in November 1776. He published a chart of this remarkable current, whose waters were found to be from six to eleven degrees warmer than the ocean through which they flowed, their superior temperature being derived from that of the climate of the Mexican gulf, whither the waters are driven and pent up by the trade winds, which force them westwardly, until they become actually more elevated, by several yards, than the waters of the Pacific Ocean. A similar extension of this stream has since been noticed by Major Rennell. But although rather dependent on fortuitous circumstances, than causes constantly operating with equal power, (as has been shown by him and Captain Sabine,) there is, nevertheless, I think, quite sufficient evidence for according with the idea of Professor Playfair, that the elevations in temperature which are not unfrequently experienced by us during the prevalence of south-west winds, may partly arise from the presence of air heated by passing over these currents.

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Sussex, and probably the most so on the southern coast of England; the hill of Fairlight, which is about a mile and a half distant, being 541 feet in height. On the west it is screened by a continuous line of hill, rising to an elevation of from 200 to 300 feet; and on the south, the British Channel presents a wide and extensive bay, stretching from Dungeness on the east, to Beachy-head on the west. This coast abounds in undulating elevations, which, for some miles in extent, are bordered by perpendicular rocky cliffs, intersected by those numerous valleys which characterize the southern shores; and which, connected with modern theories of the deluge, have been termed valleys of denudation; being supposed to have been formed by the reflux of the waters at that period. These rocks are capable of affording much interest to the geologist, by their marked character, and relation to their neighbouring deposits. Their peculiarities are very interestingly exhibited along the shore, as they boldly and precipitately rise, in some situations, to the height of 300 feet; while their bases, washed by each returning tide, form a beach consisting of pebbles and of sand, interspersed with

massive fragments which have been detached from above. It is from this formation that the chalybeate springs of Tonbridge take their origin; and although such springs have too long been disregarded in the vicinity of Hastings, there are many possessing considerable impregnations of iron, which might be rendered of great utility; so many affections existing, in which the combined action of native chalybeates, with coast advantages, seem likely to justify our most sanguine expectations, as in another place I shall endeavour to show.

The rocks I have just mentioned, consist of a fine pulverulent sandstone, containing in their lower strata, a large quantity of iron, whence it is commonly denominated iron-sand; and although found in some situations in the interior of the kingdom, is, I believe, peculiar to this part of the southern coast. But the geological character of the Hastings coast is otherwise remarkable; as the above formation is partially begirt, in the form of a horse-shoe, by a zone of weald clay, of several miles in breadth. This is rendered apparent on the eastern side of Hastings, at about

seven miles distance along the beach, from whence it proceeds to the north-west, as far as Horsham, including within its boundary Tonbridge Wells; then returning, it appears again upon the coast, at five miles to the west of the town, and may be traced almost around Bologne and its vicinity, on the opposite coast of France.

Now, by the union of these two substances, the weald-clay and the iron-sand, with beds of other clay, which occasionally intervene, as we may perceive, on the higher lands, as about Fairlight, a rich and loamy soil is produced, abounding throughout this district, and adding greatly to the healthful nature of the climate, by the facility with which any superabundant moisture is removed from its surface. The lands in the vicinity of Hastings being characterised by a degree of dryness, which materially favours its salubrity; for, as it is well known, the humidity of the atmosphere is in all situations materially increased by that of the land; and where the latter prevails, it is opposed to the advantages attending a coast residence in many cases of indisposition. *

* That the state of the air is more affected than is gene-

Great depth of alluvial surface, by exposing to the thirsty air its abundant moisture, is alone a sufficient cause for a more constant and copious evaporation than can take place on the coast of Sussex generally; many parts of which are not more remarkable for the absorbant qualities, than the superficial nature of their soil.

Of all the benefits, however, which the Hastings coast offers to the invalid, there is none more obvious than the choice of situation it affords, adapting it either for summer or winter residence; many of its habitations being placed at an elevation of two

rally supposed, by the properties of the superficial strata of the earth, appears from some circumstances which have lately been mentioned in a paper by Mr. Mackinnon, read before the Royal Society. This gentleman, residing near Southampton, being struck with the difference in the air, over the great bed of chalk which runs through a considerable part of Hampshire, from that over other strata, subjected the air in each situation to hygrometrical experiment, when a greater degree of dryness was indicated over chalk than over clay, or other alluvial soils; chalk rapidly absorbing moisture from the atmosphere, and becoming soon damp by exposure to the air; whence grass-turf growing over it looks green in hot weather.

or three hundred feet above the level of the sea ; consequently, as the temperature of all places is so materially diminished in proportion to their elevation, that in this country, one of 270 feet is allowed to be equal in the difference of its temperature to an entire degree of latitude: * and as these more elevated parts of the town of Hastings are moreover visited, during the summer months, by the then prevailing breezes, descending from the surrounding altitudes, these higher parts of the town necessarily receive from them a very diminished temperature, at those periods when coolness is most grateful. While on the

* Playfair's Outlines of Natural Philosophy.

The further influence of elevation on the temperature, cannot be better exemplified than by the mean temperature of the following situations, lying between 46° and 47° of north latitude, in all of which it has been accurately determined.

		Mean Annual Temp.
Level of the Sea		53°. 60
Geneva ——— situated	1177 feet high	49 . 64
Tegernsée ——— do.	2440	42 . 44
Peissenberg ——— do.	3264	41 . 00
Chamouni ——— do.	3372	39 . 20
Hospice de St. Gothard	6809	30 . 38
Col de Géant — do.	11278	21 . 20

other hand, the numerous habitations which are placed on the immediate beach, below the cliffs, being most effectually sheltered, at all seasons, from the more piercing winds, are no less suitably adapted for a winter residence. From hence it follows, that a proper degree of caution should be exercised on the part of invalids, lest by an injudicious choice, between situations so remote from each other in character, a summer or winter residence here, may lose some of its more important advantages.

The most pernicious of all our winds, are the easterly and the north easterly; the latter of which in this variable climate, is the only one which can be considered periodical, as it visits us with great regularity, during a greater or less portion of the months of April and May, which from this cause are usually trying months to delicate constitutions. *

* The periodical regularity of this wind, is thought to depend, like all others, on partial changes in temperature, or the irregular distribution of heat; in this case induced by the difference which takes place, between the period at which the snowy mantle of the earth is removed in this country,

The baneful influence of north, north-east, and east winds, in many of the most distressing diseases, has been observed and insisted on by the most ancient writers on medicine. They are probably rendered more injurious than others, in consequence of their greater dryness, by which they too quickly absorb, or vaporize the secretions of the exhalents, thus rapidly depriving the body of its heat; and this circumstance moreover did not escape the observation of Hippocrates, for he observes, that land winds are the driest, being rendered so by the sun and earth, and that such

and in the higher regions of Sweden and Norway, from whence these winds visit us. For the surfaces of these countries, remaining clad with snow and ice till the middle of May, still retain an atmosphere not raised above the freezing temperature; while that of England, on the contrary, has acquired an accession of 24 or 25 degrees of heat. So material a difference, therefore, may occasion that current of cold air in this direction, to restore the equilibrium in specific gravity; and on the same principle, the current would be, as it is found to be, less powerful during the night than the day, because then the difference in temperature is greatest.

winds consequently attract the moisture of animals, and are therefore injurious to them. *

Now, as unfortunately in no country in Europe are the pernicious effects of these winds more frequently experienced than in our own, it becomes of the utmost importance to observe, that such is the peculiar position of Hastings, that a considerable portion of it is most securely sheltered, by its natural bulwarks, from the searching and penetrating agency of these hostile winds. The more genial winds, on the contrary, which can alone visit these sheltered situations, are those which blow from the south, west, and south-west. During the winter season they often prevail many days or even weeks together, sometimes very powerfully, and usually waft to our shores a very sensible increase of temperature.

And it would be an injustice to Hastings, to omit also to notice, its very superior suitableness

* “Qui autem venti è terra obveniunt, eos cùm à sole et terra resiccentur, sicciore esse necesse est. Nam cùm non habeant unde alimentum trahant, a viventibus humorem exugunt, sataque et animantia omnia lædunt.”—

Hippocrat. De Àire aquis et locis.

for the employment of exercise in the open air, on the part of invalids, during those months which are usually the most cold and severe. This arises from the peculiar situation of the parade, which is screened from the before-mentioned winds, and the existence of a carriage-road, in a more especial manner adapted for this purpose, than any other with which I am acquainted on the south coast. This road is situated on the west side of the town, and is scarcely less sheltered than the town itself, beneath the surfaces of the cliffs extending along the coast, which during the whole day reflect every feeble ray of the sun. To this advantage I am convinced that the attention of invalids cannot be too particularly directed, as there are so few chronic states of disease, in which the regular employment of exercise is not of the highest importance, while there are so few situations in which it can be had recourse to, at almost any period of the year, under circumstances so favourable.

It will also, I think, be generally admitted, that few coasts are recommended by so much natural beauty as that of Hastings, as in this

respect it possesses an acknowledged superiority over any other within a much greater distance from the metropolis, and is indeed almost the only situation in its vicinity, frequented by invalids, that combines great beauty of inland scenery, with that peculiar to an extensive and highly varied line of coast; which circumstance, in connexion with its extensive distribution of those sources of interest calculated to excite pleasing and cheerful impressions, is of so much importance to the acquirement of health. In this point of view, however, the Hastings coast is generally appreciated; its surrounding neighbourhood, consisting chiefly of fine pasture, interspersed with much woodland scenery, and affording on its numerous accessible elevations, the most extensive and interesting landscapes. These are at the same time intersected by fertile dells and romantic rocky vallies, whose shelter and peculiarity of situation afford, by the many rare species of plants they contain, a rich harvest to those who are interested in the vegetable productions of our island.

It may be desirable for such, who residing at

a distance, may be unacquainted with the town of Hastings, to add, that it affords every accommodation and comfort to invalids, arising from the convenience and extent of its buildings, the facilities which are afforded for horse exercise and other recreations, its several bathing establishments, adapted to every variety of application, and the varied and excellent supply of its markets, among which, like that of some other towns on our southern shores, the abundance of fish from our own, and game from the French coast, is often a material advantage in a curative point of view.

Having thus endeavoured to exhibit to the invalid some of those causes, which appear to me to tend, reasonably and obviously, to render this part of our coast one of the most eligible situations we possess for the improvement of health, I shall subjoin, for the satisfaction of those who may feel an interest in comparing its temperature with that of other situations, the result of a thermometrical register for the four most severe months of the last and present year.

From this register, for part of which I am much indebted to the observations of several friends, it

will be seen, that the coldest month we have experienced was February, which notwithstanding, I find, gives us a mean temperature of about 44° a striking example of the mildness of the late winter. A register of the same month in the year 1826, taken at Hastings, gives as the mean $43^{\circ}.5$; but even this is perhaps rather higher than the coldest month generally. Baron Humboldt makes the mean of the coldest month in Edinburgh $38^{\circ}.3$; Paris $35^{\circ}.1$; and Rome $42^{\circ}.1$. If therefore either of the former could be considered as a fair average, our winter mean temperature on the southern coast would prove higher than even that of Rome.

*Temperature at Hastings during November, December,
January, and February, 1827 and 1828.*

1827.	at 9 A.M.	1827.	at 9 A.M.	1827	at 9 A.M.
Nov. 1	— 43°	Nov. 15	— 47°	Nov. 29	— 46°
2	— 46	16	— 49	30	— 47
3	— 45	17	— 51	Dec. 1	— 50
4	— 51	18	— 54	2	— 46
5	— 51	19	— 51	3	— 46
6	— 53	20	— 46	4	— 50
7	— 52	21	— 40	5	— 51
8	— 47	22	— 32	6	— 48.5
9	— 51	23	— 30	7	— 42
10	— 51	24	— 32	8	— 50
11	— 51	25	— 36	9	— 43
12	— 46	26	— 40	10	— 52
13	— 52	27	— 46	11	— 49.5
14	— 46	28	— 45		

*Temperature at Hastings, during November, December,
January, and February, 1827 and 1828.*

1827. at 9 A.M.			1827, at 9 A.M.			2 P.M. 9 P.M. WIND.		
Dec. 12	—	48°	Dec. 22	—	51°	—	52°	SW.
13	—	44	23	—	48	—	49	S.
14	—	48	24	—	52	—	53	S.
15	—	50	25	—	46	—	51	NW.
16	—	48	26	—	52	—	53	W.
17	—	42	27	—	47	—	51	NW.
18	—	50	28	—	44	—	50	E.
19	—	52	29	—	41	—	39	N.
20	—	48	30	—	42	—	44	SE.
21	—	49	31	—	46	—	48	S.

1828. 9 A.M. 2 P.M. 9 P.M. WIND.			WEATHER.		
Jan. 1	—	47°—49°—48°—	SW.....	Rain and strong breezes.	
2	—	48—47—49—	SW.....	Fine, breezes moderate, rain in the evening.	
3	—	48—49—44—	W.& WNW.	Very fine, breezes moderate.	
4	—	43—43—46—	WSW.....	Fine, breezes moderate, slight showers.	
5	—	41—42—40—	N.....	Fine, breezes moderate, slight showers.	
6	—	36—38—40—	NE.	Fine, cloudy at intervals.	
7	—	36—38—38—	ESE.	Do. do.	
8	—	38—38—35—	E.....	Hazy, breezes mod. fine.	
9	—	34—33—34—	ENE.....	Cloudy, breezes moderate.	
* 10	—	33—33—30—	ENE.....	Windy and Snow.	
11	—	38—44—44—	ENE.....	Breezes moderate, rain.	
12	—	48—50—48—	ESE.....	Hazy, calm.	
13	—	50—52—48—	SW.....	Strong breezes, cloudy, fine intervals.	
14	—	48—50—46—	SW.....	Breezes moderate, cloudy.	
15	—	41—41—40—	N.....	Do. do. foggy.	
16	—	39—44—47—	NNE.....	Do. do. fine, cloudy at intervals.	
17	—	49—49—49—	ESE.....	Breezes moderate, rain.	
18	—	50—53—51—	SSW.....	Do. do. do.	
19	—	56—52—48—	SW.....	Strong breezes, fine.	
20	—	50—53—52—	SW.....	Breezes moderate, fine.	
21	—	49—55—56—	SW.....	Do. do. do.	
22	—	50—52—52—	SW.....	Do. do. do.	
23	—	48—52—47—	SW.....	Do. do. do.	

*Temperature at Hastings, during November, December,
January, and February, 1827 and 1828.*

1828.	9 A.M.	2 P.M.	9 P.M.	WIND.	WEATHER.
Jan. 24	— 49°	— 52°	— 49°	WSW..	Strong winds, fine.
25	— 46	— 50	— 51	WSW.....	Do. do. do.
26	— 50	— 52	— 47	W.	Breezes moderate, fine.
27	— 45	— 49	— 49	W.	Hazy rain.
28	— 43	— 48	— 46	N.	Hazy fine.
29	— 47	— 46	— 44.5	SW.	Breezes mod. fine.
30	— 45	— 49	— 44	SE.	Breezes mod. fine, showers.
31	— 48	— 49	— 48	S.	Do. do. do. do.
Feb. 1	— 50	— 50	— 49	S.	Breezes mod. rain.
2	— 51	— 50	— 51.5	W.	Do. do. do.
3	— 45	— 48	— 50	NW.	Do. do. fine.
4	— 48	— 50	— 50	SW.....	Do. do. rain.
5	— 50	— 52	— 49	SW	Do. do. do.
6	— 50	— 54	— 50	SW.....	Do. do. do.
7	— 50	— 52	— 46	Variable . .	Calm, much fog.
8	— 46	— 48	— 46	W & N....	Breezes moderate, cloudy.
9	— 44	— 46	— 44	N.....	Do. do. do.
10	— 39	— 35	— 36	N.	Do. do. do.
* 11	— 34	— 34	— 31.5	NE.....	Do. do. snow.
12	— 31	— 32	— 28.5	N.....	Do. do. fine.
13	— 30.5	— 32	— 32	N.....	Do. do. do.
14	— 35	— 36	— 34	ESE.	Breezes strong, fine.
15	— 36	— 40	— 43	W.	Breezes moderate, cloudy.
16	— 35	— 38	— 40	N.	Do. do. fine.
17	— 40	— 41	— 40	SSE.	Do. do. do. & rain.
18	— 45	— 46	— 43	S.	Do. do. do.
19	— 44	— 47	— 40	SSE.	Do. do. do.
20	— 45	— 48	— 46	N.	Do. do. do. & rain.
21	— 45	— 47	— 48	W.	Do. do. do.
22	— 44	— 45.5	— 44	S.....	Do. do. do.
23	— 42	— 41	— 40	S.	Rain.
24	— 44	— 46	— 45	SW.....	Rain and fine.
25	— 49.5	— 51	— 48	S.	Hazy gentle rains.
26	— 50	— 50	— 49	S.	Fog and rain.
27	— 53	— 54	— 51	SW.	Fine and fog.
28	— 50	— 53	— 50	NW	Fine.
29	— 52	— 50	— 48	S.	Fine and rain.

* These two were the only two occasions in which Snow fell in Hastings dur-

I shall now proceed to offer some observations on the Air, Sea Water, and the use of the Bath ; agents of so much importance in the curative means a coast situation affords.

ON THE AIR.

Although the individual who enjoys robust and perfect health, is comparatively little influenced by the different states of the air ; and although he is enabled to live, as well on the summit of the mountain as in the depth of the valley ; beneath the pressure of a heavy or light atmosphere, or exposed to a greatly varying temperature ; yet no sooner do certain states of diseases make their appearance, than he loses his apparent independence of these external circumstances, and discovers one situation or temperature to be more congenial to his feelings than another, and that his more urgent symptoms in the same degree become more or less alleviated.

ing the four months ; in neither did it continue to descend during more than six hours, and except on the more elevated situations, had disappeared altogether within thirty-six hours.

This influence of climate, not only on disease already existing, but in its production or removal, as also in establishing its peculiar type, has been particularly noticed at all periods; but by few has it been more fully appreciated than by the great Hippocrates, who, in his labours on epidemic disorders, has left us, amongst other treasures, his admirable and persevering example in accurately tracing its effects; and indeed, the influence of atmospheric vicissitudes on the constitution, is one of the most important subjects of enquiry connected with the duties of the physician, from the great power which they exercise on the functions of animal life. From the wide field of enquiry, however, such considerations would embrace, it will be readily perceived, that in the observations which follow, nothing further is attempted, or intended, than a consideration of some of the more obvious effects of the atmosphere.

The primary influence of the air which surrounds us, on the body, may be considered as resulting from a twofold operation: its action on the lungs, and that on the surface of the skin,

and it is through the medium of each of these operations that its beneficial, or injurious properties, are imparted to the constitution.

These effects, however, become importantly modified by the constitutional peculiarities and habits of every individual, and by none of the latter more especially, than the accustomed degree of exposure to them, to which each has been subjected; and thus, although one kind of atmosphere may be salutary and healthful to him who has been brought up under its constant influence, the same to another may be no less injurious. In like manner also do the nature and qualities of the air, establish peculiarities of constitution, which, under disease, actually demand remedies, if not opposed to each other, still very importantly varied; a circumstance also not unnoticed by the ancients, for Asclepiades says, that the people of the Hellespont, who were subject to the winds of Asia, bore the effects of bleeding much better than those of Athens and Rome, whose climate was warmer and moister.* The constitution

* "Apud Athenas, atque urbem Romam, phlebotomia vexatos vel pejus acceptos esse pleuriticos, in Pario vero atque Hellesponto resumptos ac relevatos."—*Cælius Aurelianus*.

difference between persons residing in the town, and in the country, is every where remarkable and obvious, but more especially so when labouring under similar disorders. The effects of the atmosphere also exhibit themselves in a striking manner in the change of season, not only in the removal, but also in the production of diseases.*

The same is not less observable, as I have already noticed, under the prevalence of certain winds; all which circumstances are highly interesting and important in a curative point of view; as a careful observance of them, and the efforts which they exert, either in the cure or the support of disease, requires, as the judicious Hoffman has remarked, to be taken proper advantage of in its treatment.

On a due consideration of the effects of air on the constitution of invalids, it will, I think, be admitted, that such as is least liable to variation, and which unites a suitable degree of warmth, with a certain degree of moisture, which are the usual

* Qualia tempora tales morborum constitutiones.—

Hipp. lib de humoribus.

properties of a sea atmosphere, is, in the generality of our afflictions, as conducive to improvement and health, as any to which we are exposed.

I shall, however, now briefly endeavour to point out, what are the most obvious effects on the system of the different atmospheric changes to which we are most liable.

A cold and dry atmosphere, provided it be not very severe, to a person who enjoys good health, and who can take due advantage of bodily exercise, is one of the most conducive to the support of the former; as, by the motion in which he is under such an atmosphere disposed to engage, the circulation is excited, and with it the action of the exhalent vessels on the surface; consequently the discharge of insensible perspiration is thus maintained, which by the diminished moisture of such an air, is as freely absorbed and carried off. Such a state of the air is, therefore, usually denominated strengthening, and bracing; and it certainly induces in us a greater degree of activity. The effect of such an atmosphere, as this, we may observe in the inhabitants of mountainous countries, and it is these

effects, which induce persons, who are not by indisposition rendered too susceptible to atmospheric impressions, to place the north wind amongst the most healthy; and which induced Celsus to observe of it: "*totum corpus spissat et mobilius atque expeditius, reddit.*" The above, also, are the properties which impart to a clear and calm frost so generally healthful an influence.

The diseases to which this cold and dry state of the atmosphere chiefly predisposes, are inflammatory affections; and it is more especially productive of rheumatism, coughs, catarrhal fevers, and inflammatory disorders of the lungs and chest; all which are therefore more frequently met with in high elevations than in the valleys. In such diseases, therefore, this kind of atmosphere becomes consequently pernicious, not only by the cold constricting the substance, and superficial vessels of the body, but by the irritation produced by its immediate contact with the vessels of the lungs; and, by the same operation, its power of quickening the circulation through them; for the respective velocities of any fluid are inversely as the capacities of the canals through which it is propelled.

There is, however, another cause, which usually renders such a state of the atmosphere injurious to persons much debilitated by disease; for as their afflictions incapacitate them from taking a sufficient degree of bodily exercise, the constricting force of the external cold, becomes superior to the enfeebled power of the circulation; and that of the exhalents on the surface, and the active functions of the latter, which are so conducive to health, become checked by the torpor thus induced, whence the whole frame necessarily sympathizes in the derangement. A cold, dry, and rapidly circulating atmosphere, is however far more injurious; from the greater rapidity with which it carries off heat from the surface of the body, not only by the contact of its cold particles, but also by the more quick evaporation it occasions; the effects it produces on the constitution, being analogous to those resulting from a calm atmosphere a great many degrees colder. Thus in this kingdom, when wind prevails during a frost, the thermometer seldom falls below 27° or 28°, but under a calm frost it not unfrequently descends to 8°; yet the impressions of the former are

often more severely felt than the latter. This circumstance was very interestingly shown in Captain Parry's voyages, for the seamen could bear a temperature of 30° or 40° below zero with impunity, while the air was at rest, but with a powerful wind, the cold of several degress above zero was insupportable. Such then are the effects of our east, and north-east winds, and it is thus that during their prevalence, in the spring, inflammatory affections of the chest and throat most prevail; affections, which from their frequent occurrence under a cold and dry atmosphere, were formerly erroneously attributed to a want of sufficient inhalation of humidity.

An atmosphere, however, which is very cold, and moist, is far more generally prejudicial to invalids than the former; for such a state of the air, so far from imparting appreciable advantages, is constantly succeeded by a great variety of disease. I have already observed, that the prejudicial influence of a cold and dry atmosphere on a debilitated system, although arising, in some degree, from the absolute abstraction of heat by

contact, is chiefly communicated through the medium of its exhalent arteries, which by the torpor they undergo, lose much of their energy, and consequently suffer a material diminution in the quantity of their secretion.

When, however, cold is united with great humidity, a double cause operates in the production of this same result; for as the atmosphere can only sustain a certain portion of moisture in solution, or mechanical union, the slowness of its absorption of humidity is necessarily in proportion to the quantity it has already acquired. A diminished, or suppressed action, therefore, of the exhalent vessels of the skin, becomes here a still more certain result than in the former case, and more especially where bodily exercise cannot be enjoyed.

Another circumstance which tends to render a cold damp atmosphere more prejudicial than a cold dry one, and more especially, than one that is calm, arises from its more perfect power of conducting away heat, which Count Rumford, by numerous experiments has shown to be the

case; consequently, although the thermometer indicates the temperature to be the same, still its effects on the constitution are widely different; and debilitated persons feel more chilled by such an atmosphere, at a temperature of 35° , or 36° , than when the thermometer is down at 31° or 32° , and when the frost has locked up all the humid exhalations of the soil.

Such an atmosphere then, even on those who are naturally healthy, if it long prevail, can scarcely fail to be productive of more or less derangement of the bodily functions; which derangement is generally evinced by depression of spirits, indisposition to exertion, and most commonly, a sympathetic torpor and inactivity in the digestive function in its general sense; with vitiated or impaired secretions of the liver, and other glands. It is chiefly in this way, that a cold atmosphere, saturated with humidity, is so productive of indisposition amongst those, of a delicate constitution, who are the residents of marshy districts.

I have before observed that such an atmosphere as combines moderate warmth, with a slight degree of moisture, is in the generality of diseases, perhaps

more conducive to improvement than any other; yet, there is not probably a more baneful combination than when great heat and moisture are conjoined, and more especially, when the air is at rest. This is too fully exemplified to us by its pernicious effects in tropical countries; where the air, in low and marshy districts, when confined and rendered stationary by woods, and consequently united with the unhealthful influence of perpetual vegetable decomposition, is productive of the most serious consequences to all who are exposed to its influence.

The effects of an atmosphere thus surcharged with heat and vapour, on the constitution of man, is to relax the solids, to rarefy the fluids, and to increase the secretions on the surface; which however, from the already saturated state of the air, is not readily removed; to lessen the powers of the circulation, and to diminish the energies of the body, giving rise, by their combination, to the various awful epidemic diseases, to which fortunately, we are little exposed in this island.

Yet, that a certain degree of moisture is necessary to constitute a healthy and restorative atmos-

phère, is evident, from a consideration of the deleterious effects of one without it, for air, destitute of moisture, * cannot be breathed with ease or impunity, whether it be warm or cold; when any degree of irritability exists within the lungs, such an air generally becomes insupportable, and when united with much heat, is to all, productive of great oppression and uneasiness, as is experienced by those whose occupations expose them to its influence; while, on the contrary, if humidity be added to it, such impressions are speedily removed. It is therefore a common practice among such as are exposed to air greatly heated, by means of stoves, to have recourse to steaming the apartments.

The painful influence of a very dry heated air, is also feelingly narrated by those who have subjected themselves to it, in travelling over extensive sandy plains, beneath the scorching rays of a vertical sun. When such is the case, and the air is suddenly put into motion, it frequently proves, from

* I mean of course comparatively, as all air contains moisture to a greater or less extent, which can only be removed from it by chemical agency.

an inability to respire it, no less suddenly destructive to animal life; as often happens in the deserts of Arabia, and on the coast of Coromandel, where, we are informed, the smaller animals and birds betake themselves to the houses for security.

The operation also, on the surface of the body, of a dry hot air, is no less deleterious; and especially to weakly constitutions, as it powerfully excites an increased action in the exhalent vessels, and too speedily carries off their exhalations, by its thirsty and absorbent nature; thereby incapacitating such individuals from partaking of that exercise which is so necessary to a state of health; such an atmosphere therefore, can only be borne without injury, by Arabs, Negroes, and others, who have been born and brought up under its influence, and whose peculiar secretions are wonderfully adapted to resist its impressions.

From such considerations then, may be I think deduced, the superior advantages which are afforded in many diseases, by a sea atmosphere, little subject to these extremes, advantages arising, not more from the absence of the irritation they occasion to the lungs, than from its healthful influence on the

exhalents of the external surface of the body ; on which it tends to constantly keep up a gentle action, while it does not too rapidly deprive them of their fluids, or the body of its heat.

The salutary and invigorating qualities, however, of sea air, which have been so long experienced and acknowledged, have led to the idea, that other causes have an important share in the production of its peculiar effects ; and thus they have been assigned to a difference in its chemical composition, from that of the land, while other authors, as Dr. T. Reid, have been contented to regard it as " the most pure and healthful we possess," without allusion to the causes which impart its salubrity. It is well known, however, that saline particles are wafted by it to considerable distances, and M. Vogel, of Munich, has shewn in a paper, published in the *Journal de Pharmacie*, No. 11, for Nov. 1823, that the sea air of our channel, holds in chemical combination, a portion of those muriates over which it is wafted, and a less proportion of carbonic acid than that of the continent of Europe ; it is not improbable therefore, I presume, that this may be the case gene-

rally, with an atmosphere in contact with the ocean, but whether from the chemical change which it thus experiences, it is rendered more salubrious, is I think, at present problematical. It is notwithstanding, a curious and well ascertained fact, that such air as is best adapted to vegetable life, is the most pernicious to animals, and vicê versâ. Vegetation is usually much less luxuriant in the vicinity of the sea, than when far removed from it, and animal health is certainly more perfect, near and upon the sea, as will be hereafter shown, than in any other situation. It is therefore, still an interesting subject for enquiry, how far the greater or less proportion of carbonic acid, which is to the one so baneful, and to the other so beneficial, or how far the muriates just noticed, may exert their influence in these results. If, however, we consider the before-mentioned properties of sea air, and the comparatively slow degrees by which changes in its temperature, are necessarily communicated; these will, I think, in a great measure, explain the benefits which are usually imparted by it. One quality of vast importance to its salubrity, is doubtless its constant

agitation; by this means it affords to us, at each inspiration, a regular supply for our demands, pure and uncontaminated by noxious effluvia, for, as Dr. Philip, and others who have attended to the subject, have very justly remarked, nothing contributes more to the production and support of disease, than a want of motion in the atmosphere. The absence of this is evidently one of the numerous causes which often render prejudicial the atmosphere of large and populous towns, where, from the accumulation and extent of the buildings, its circulation is greatly arrested. On the same principle, Huxham says, in reference to epidemic diseases, "I have often observed them to greatly abate, both in their number and violence, after storms, and heavy rains; the contagious effluvia and morbid congestions of the atmosphere being in this way dispersed;" and again, "even tempests themselves very frequently, prove salutary, by dissipating the miasmata, stagnant air, being no less than stagnant water, liable to corruption, unless often put into motion."

But the salubrity occasioned by the agitation of the air, which is more general, perhaps, on the

coast, than in any other situation, was noticed with great interest in much earlier ages. Augustus Cæsar was so strongly impressed with its beneficial influence, that he built and dedicated a temple to Circius, a wind so powerful, that it frequently blew down the houses of the people. The inhabitants of Gaul also, as Seneca informs us, "gave public thanks to this exceedingly tempestuous wind, in consequence of its clearing the atmosphere, and rendering it healthful."

SEA WATER.

When we consider the importance of salt in the vast economy of nature, and the favourable and healthful influence, which in moderate proportions, it exercises on the animal machine, of which it forms an important constituent; together with the instinctive desire manifested on the part of animals to obtain it; with the innumerable other proofs of its varied utility; we are not astonished that water holding so large a proportion in solution as that of the ocean, should exert a much more active influence in the cure of diseases, as well in its external, as internal application, than water in which no such an impregnation exists. I cannot therefore avoid considering those arguments which have been adduced to the contrary, not only as opposed to the experience of ages, but as being not less unphilosophical, than untenable.

Of all the mineral waters which are employed medicinally in this country, I have no hesitation in regarding those of the saline kind as the most generally useful. Their saline ingredients consist principally of sulphates, muriates and carbonates, having soda, magnesia, and lime, for their bases; and a greater or less proportion of free carbonic acid gas, and atmospheric air. In some however, as those of Gloucestershire, which issue through the surface of the blue lias clay of that country, an additional impregnation of iron also exists.

The most widely diffused of all these waters, namely, the water of the ocean, possesses, there is reason to believe, an activity in its effects, greater than any other, from the larger proportion of neutral aperient salts which it contains.

The average quantity of saline matter contained in sea water, is computed to be about one part in thirty, or rather more than half an ounce in the pound avoirdupois; although this proportion is subject to considerable variation in different situations and latitudes; as is also the nature of its contents.

By the experiments of Bladh, it has been found,

that the specific gravity of sea-water, and the quantity of salt contained in it, is greatest near the tropics; and that there, its salts amount to one part in twenty-four, gradually diminishing towards the equator, to one in twenty-five; from about twenty degrees of latitude north and south.

On the southern coast of England the proportion of its salts may be considered as one ounce in thirty-three, or about three per cent.

Bouillon, Lagrange, and Vogel, agree that the water of the British Channel possesses the following contents in 10,000 parts.

Muriate of Soda .	251 . 0
Sulphate of Magnesia .	57 . 8
Muriate of Lime .	35 . 0
Sulphate of Lime . .	1 . 5
Carbonate of Magnesia .	2 . 0
Carbonate of Lime .	2 . 0

Lavoisier also analyzed it, but his results differ so materially from these, that some error probably occurred in the operation.

From such a combination of saline ingredients, sea water constitutes an internal remedy, whose judicious employment is well known to be fol-

lowed by the most beneficial results in a great variety of diseases, some of which will hereafter be noticed; and this circumstance might be inferred, from the operation of neutral salts on the system.

Among these, the muriate of soda, or common salt, is well known by its mild stimulus, when used in moderation as a condiment, to promote digestion, gently exciting the action of the bowels, and, by slightly increasing the force of the circulation, aiding the action of the exhalent and absorbent vessels; while, though contrary to recent opinions, some arguments might, perhaps, be still adduced for supposing, that it exerts to a certain extent on the secreted fluids, that antiseptic quality, which renders it invaluable to mankind in every country, in arresting the progress of animal decomposition.

Be this however, as it may, and though the laws impressed on living organized matter, are very different from those which affect it after death, its utility, in the animal fluids, may be with certainty inferred, from its abundant presence in them

The efficacious properties of sea-water, when taken internally, are not less obvious, from the united observations of the ancients and the moderns; it being interesting to observe, that the former employed it in many of those cases in which it is still found to be most beneficial. From its useful action on the liver, it was considered as an antidote for melancholic humours, or black bile. It was also recommended in colicky affections, and with other medicines, was often used by them as an emetic. *

In most cases, they appear to have been careful to obtain it at some distance from the land, where it is least subject to the impurities which arise from decomposing vegetable matter, and the powerful action of the tide; and this latter expedient, I may observe, is particularly worthy of our imitation, as it is well known, that water

* "Bibitur quoque, ad purganda corpora, bilemque atram reddendum. Quidam et in tenesmis, articularisque morbis asservatam.

"Aliqui decoctam, omnes ex alto haustam, clysteribus quoque marinam infundunt tepefactam. Tormina quoque et choleram calida infusa clysteribus sedet."—*Plin. lib. xxxiv.*

when obtained at a distance from the shore, is not only much more pure, but much less unpleasant to the taste, than such as is procured nearer; this plan also, by the assistance of our fishermen, may at all times be adopted with the greatest facility.

It will be needless to attempt to particularize the varied cases in which the greatest benefit attends the internal use of sea water, since by its powerful tendency to remove that torpor and inactivity in the functions of the stomach and digestive organs, so frequent a concomitant of other diseases, it may be so often had recourse to with benefit, and thus its internal use may be considered to stand high on the list of advantages afforded to the invalid by a residence on the coast.

ON COLD SEA-BATHING.

As I shall have occasion to consider the more particular effects of bathing, in reference to affections, in which it is especially indicated, I shall in this place chiefly advert to its general tendency.

If we direct our attention to the accounts concerning bathing among the ancients, we find them to combine much interesting information in reference to the habits and customs of the times; since the salubrity arising from the use of water, applied generally over the surface of the body, either pure, or impregnated with saline ingredients, was fully appreciated by mankind in the earliest ages of the world; and while its importance has been duly regarded by the civilized people of every

clime and period, even among the more barbarous tribes of mankind, we find none, with the exception perhaps of the most utterly degraded, who are not in the habit of having frequent recourse to it. *

* In eastern climes especially, so much importance was attached to frequent ablutions of the body, that they were enjoined by the great law-givers of antiquity, as an essential part of religious exercises; and we learn, that emperors and kings, have not only been obedient to their injunctions, but have rivalled each other in the splendour of their establishments for the performance of this duty. When the natural advantages of situation were not afforded, the expenses which were occasionally bestowed on their formation, were such as are scarcely credible in the present day; and for their decorations and embellishments, nothing was omitted which the designs of art, or the devices of luxury could bestow.

Warm, or rather tepid baths, were also in very general use among the more ancient Greeks, who probably derived from the Egyptians, their taste for this luxury, in common with many others. Their practice of using the warm bath, and afterwards anointing the body with fragrant ointments, before their principal meal, is fully and interestingly detailed in the *Odyssey*, with the many other observations regarding their early customs.

Among the Greeks also, the state of exhaustion occasioned

Among civilized nations it is well known, moreover, that the bath is employed under very varied modifications, which produce important differences in its action on the system, and more perfectly adapt its application to every variety of circumstance.

by violent exercises in the gymnasia, was removed by the use of the tepid bath, whence their thermæ or tepid baths, were dedicated to Hercules.

When, again, we regard the comparatively more recent establishments of this kind among the Romans, we find them constructed on a scale of magnificence of which we are now scarcely able to form an adequate conception ; thus, according to Vitruvius, and other historians, we learn that the baths of the Emperors Dioclesian, and Antoninus Caracalla, which were adorned with stately columns of the most beautiful marbles, the mutilated remains of which still so much excite our astonishment, were sufficiently capacious to contain many hundreds of persons at the same time. Fabricius informs us there were 856 public baths at Rome, and some of these large enough to contain 1800 persons. From Seneca, again, we learn, that many of their baths were lined with precious stones, which were probably jaspers and agates ; Pliny also states, that some of the baths employed by the noble ladies, contained seats formed of solid silver, and that the spouts which conveyed the water into them, consisted of metal no less precious.

My object, however, is chiefly to notice here, what may be termed coast bathing; and I may very fairly observe, that among all the numerous baths employed in this country, those which consist of cold and hot sea-water, are had recourse to with the greatest general advantage.

Whilst the one, by its invigorating influence, imparts energy to the circulating and nervous systems, debilitated by disease, in the earlier periods of life; the other, by a more soothing mode of action, arrives at very similar results, and often in a class of diseases of an opposite character, in those incident to its more advanced stages, or its decline.

But these invaluable agents, far from confining their utility to the removal of a variety of disorders, are no less calculated to sustain and prolong the healthful functions of the body, as is fully appreciated by those who are in the habit of employing them.

During the autumnal portion of the year, as Dr. A. P. Buchan observes, the sea may be considered as affording rather a temperate, than a cold bath, being only a few degrees lower in temperature

than the air; the air having, at that period, become cooled by the prevailing western breezes, before the surface of the water has been deprived of that heat, which it has accumulated during the summer months.

The average temperature of the sea is, however, I think, seldom less than about forty degrees below that of the body; but the sensation of cold which we experience on bathing in the sea, is much greater than would be produced by exposure to air at the same temperature, in consequence of the greater capacity of the water for absorbing or conveying away heat; which in fluids, as in solids, is increased in proportion to their density.

Yet, though cold sea-water is more dense, and has a greater specific gravity than fresh, it is obvious, from Dr. Currie's experiments, that its continued action produces much less torpor in the animal system, than that which is produced by fresh water at a similar temperature; which difference can only be assigned to the stimulating effect of its contents; and this result may be readily inferred, from the benefit which is constantly de-

rived from those strong solutions of marine salt, so frequently employed by physicians in the interior of the kingdom, in cases where stimulating applications are desirable.

The superior advantages possessed by salt, over fresh water, have been acknowledged in all ages, and very reasonably induced Dr. Currie to employ it in preference to fresh water for affusion in fevers.

He observes, in his Medical Reports, "I was led to prefer salt water to fresh, on account of the stimulating effects of sea-salt on the vessels of the skin, by which, I apprehend, the debilitating action of cold is prevented. Salt water, either for the purpose of immersion, or affusion, is more grateful to the patient than fresh water; and it is well known that it may be applied to the surface for a length of time, with much less hazard; and persons after being immersed in it, exhibit the vital re-action stronger than is produced by fresh water."

No less accurately was the same observed by the ancients; Pliny remarks, that those who are made

warm by salt water, are not easily rendered cool.*

It is a fact in physiology, as well ascertained by daily observation, as by direct experiment; that in whatever way animal heat be acquired, the function of the exhalent vessels is the great agent by whose means its uniformity is maintained, and its superfluity disposed of; the temperature of the body being in a great measure regulated by the exhalation which takes place during health on its surface, and by that of the lungs, internally.†

* “*Difficilius perfrigescunt marina calefacti.*”—*Plin.* lib. xxxi.

† I cannot avoid introducing the following interesting and philosophical observations of Dr. Currie, on the important office which the exhalents thus fulfil in equalizing the temperature of the body, as the main argument remains unshaken, though the chemical theory appended thereto is relinquished by many. “As in respiration, a gas is constantly converted into a solid or a fluid, and thus heat evolved, so in perspiration a fluid is constantly converted into a vapour, and thus heat is absorbed.

“If then we suppose, that while the proportion of oxygen received into the system continues the same, the temperature of the atmosphere is increased, we can understand why our heat is not increased, by supposing an increase in perspiration.

As therefore, without this provision, our animal heat would be liable to rise to an inconvenient degree, from every slight increase in the motions of the heart; it becomes of great importance, that the action of the exhalents should be regularly and permanently supported, though not permitted to exceed what is required to produce this result; because, whatever tends to promote a due and regular performance of their cooling function, is as conducive to health, as copious perspirations are calculated to debilitate.

In this capacity then, the frequent and judicious exercise of sea-bathing is highly beneficial; nor do we, I think, possess any means which

“ And if the temperature of the atmosphere remains unchanged, while the oxygen received by the lungs is increased, we can still explain the stability of our heat, by supposing an increase of perspiration.

“ The first of these suppositions is nearly realized, when a warm day comes on after cold weather; the second is realized, when an increased respiration takes place under exercise; thus perspiration appears to have a principal share in regulating the animal heat, and the chain of life seems to be connected with the physical world by two links, which the recent discoveries in chemistry enable us to unveil.”—

Currie's Medical Reports, p. 176.

so effectually contribute to lessen the susceptibility of the body to cold; which desirable object it produces, not only in accordance with the well known axiom, that the effects of cold are diminished in proportion to our habit of exposure to its impressions, but also on other principles no less influential. *

* The greatest extremes to which the former principle is carried, and with perhaps the greatest success, are those had recourse to amongst the northern inhabitants of Russia; and certainly, of all the vicissitudes in temperature, to which the human race is subject, these are the most extraordinary.

In those countries, the rude vapour-baths which are so much in use among the peasantry, are commonly heated to 120°, but are stated sometimes to possess more than 160 degrees of heat; and yet, after half an hour's baking in these wet ovens, the bathers rush hastily out, to roll their naked bodies in the surrounding snow, in an atmosphere many degrees below zero; or, in a higher temperature, having cleared the surface of its ice, plunge into a neighbouring river.

Of such antiquity also is this custom of vapour-bathing amongst these people, that precisely similar baths are described by Herodotus, as in use in his day among the Scythians, a people who, he says, "subject themselves to the action of a perfumed vapour, which ascends more power-

But though, of all external agents, there is none calculated to prove more beneficial to health than the cold sea-bath, where general or local debility is not induced by diseases referable to the organs most important to life; yet, if it be otherwise, cold bathing, of whatever kind, can be by no means had recourse to with impunity, even by those in whom the affection may have made very little progress.

The action of the cold sea-bath on the constitution of a person merely debilitated, to whom advantage is likely to result from its employment, is that of first producing a sudden determination of the blood into the larger trunks of the venous system, and the heart.

This is succeeded by an increased arterial action throughout the body, which is rendered sensible

fully than that which arises from any Grecian stove, and which excites in them loud expressions of gratification." The Romans also, although they had not the means of rendering these sudden transitions so great, or so severe, as those I have just noticed among the Finlanders, yet often adopted them to the extent the nature of their clime would allow.

by the extreme vessels on the surface of the skin, by the glowing genial warmth it there excites, and widely diffuses; the stimulus thus produced, is communicated to the secreting pores, and imparts to them an increase in the energies of their peculiar functions, so necessary to a state of perfect health.

But the effects of cold water on the body, if long applied, are gradually to deprive it of its heat; which latter the vital powers exhaust themselves in endeavouring to renew by transient glows, each becoming more and more feeble; the rapidity of the exhaustion produced, being in proportion to the coldness of the water.

Here it must doubtless be generally admitted, that the powerful evolution of heat, which is thus necessarily and suddenly produced in the animal system, to restore the loss occasioned by the rapid abstraction of the cold-bath, (whose effects are so much more powerful than those which usually take place from the action of the air,) is a convincing proof that the system still exerts an unknown and inherent power of producing it, altogether independent of the chemical and mechanical means

which were supposed to give it origin; and more especially obvious does this appear, when we find that the actions of the heart and respiration, are usually by no means adequately, and often, as Dr. Currie remarks, not perceptibly increased under such circumstances.

On this subject therefore, I fear, we cannot go farther, even in these days, than accord with Galen, in attributing this powerful accession of heat to a preservative power in the system, which guards the internal organs of the body from the effects of cold.

I cannot help remarking also, of this great man, since our present practice is in reality so much indebted to the observation of antiquity, that many of our most approved views concerning bathing, were no less appreciated by him, in the second century, than they are in the present day; thus he particularly cautions us from employing the cold-bath, during the presence of visceral organic disease, as also in the hectic fever which accompanies consumption.

It is no less interesting to observe, that so far from our practice of cold affusion in fevers, being a remedy of modern origin, Galen recommends,

in ardent fevers, the placing of patients in a large linen cloth, and that by means of four persons, they be thus dipped into a bath of cold water to extinguish the preternatural degree of heat with which they were oppressed; and he adds, that by these means, not only the solids, but the surface of the skin, are reduced to their natural temperature, by which their dryness is removed, and that additional heat which previously existed is extinguished.*

I think I may venture to observe, that, while much of the beneficial action induced by the warm-bath on the system, is primary, and mechanically dependent on the agent; that of the cold is secondary, and dependent more on the energies of the system itself; a circumstance which in the practical treatment of disease, is of the highest importance; for it is obvious that the latter demands a certain degree of power in the system to effect its completion.

Too many instances are however presented to our notice, in which, from the weakened and impaired state of the animal powers, this cannot be

* Galen : Method. Medendi.

attained ; in such cases, therefore, the tendency of the cold-bath is directedly opposed to the one which is desired.

In them, the nervous system receives an impression with which it is unable to contend, the blood being determined inwardly, and it being long before the heart and arteries recover sufficient energy to propel it back into the extreme vessels on the surface; hence arise continued shiverings, and an unpleasant sensation of cold ; the countenance appears pallid, while any internal organ affected by disease, especially if that disease be of an inflammatory nature, is unfavourably influenced by this derangement in the circulation.

That a certain degree of energy in the circulation is necessary, to derive due advantage from sea-bathing, though less is required by it than the cold-bath of fresh water, a fact of great importance, is no less obvious from its prejudicial influence when too frequently had recourse to by debilitated persons, in whom it may be really indicated.

And on the same principle it is useful to observe, that during the violence of fever, when the action of the heart and arteries is preternaturally

excited, the application of cold water is perfectly safe and beneficial, though so frequently otherwise in the same individuals during their convalescence, when this increased action is removed, and always so, after the cooling process of the perspiring stages of such affections have commenced; thus it is the judicious employment of cold bathing, which alone renders it, I conceive, the most useful and safe, as it is the most natural of external agents.

Independently of the existence of disease, its effects on the system may be observed to vary greatly in different individuals.

The action of the heart is very differently affected by the application of cold water to the surface of the body; for in some it becomes slower and fuller than usual, while in the more irritable, its pulsations are materially quickened; though in each case, the change induced, is probably connected with the effort made in the system to assist in restoring the equilibrium of heat throughout the body, which the coldness of the medium so quickly destroys.

The extent therefore, of this power of re-action

THE EFFECTS OF COLD ON THE GASTRO-INTESTINAL SYSTEM.

THE EFFECTS OF COLD ON THE GASTRO-INTESTINAL SYSTEM. The effect of cold, rendered more critical test of constitutional vigor, is shown, occasioned on entering the water, being particularly in the susceptibility of the system to cold, and the consequent action of the constitution.

It is observed that persons who are living in the country and who are where increased energies of the body are exerted are not very efficiently cooled, and the action of the system is diminished. One of a more robust nature should be had recourse to. It is also to be remarked, that it is impossible to be too particular in the employment of the sea-bath, of whatever kind, in the first instance, although the sea-bath is less liable to produce injurious effects from its higher temperature, and additional stimulus, than a cold-bath of fresh water.

What I have just observed is applicable in an especial manner to young and delicate females, in whom the greatest possible benefit is so often likely to result from sea-bathing, if properly had recourse to: yet, when the commencement is rude and the circulation of the extreme blood-vessels appears to be

peculiarly languid, a state which is often connected with a degree of indolence in the vessels of the absorbent system, indicated by occasional swelling of the feet and ancles, it is alone prudent, to begin a course of sea-bathing with tepid water; and to reduce its temperature only in proportion to the progress made in the cure of the disease.

The same means, it may be observed, should be invariably employed, in very delicate constitutions, dependent on whatever cause, since the neglect of this simple precaution has very frequently been productive of material injury to such invalids.

Gentle exercise has with great justice been recommended by several modern medical authors, before cold-bathing, in order to rouse the circulation, and enable it to effect a proper degree of reaction; and this expedient is proved to be beneficial, by the same reasoning which accounts for the danger that attends cold-bathing, when the functions are rendered languid and fatigued by violent exercise.

But the advantage of gentle exercise again, before cold-bathing, is not a discovery of our days;

for Galen compared its effects to those of the warm-bath, in equally determining the internal heat to the surface of the body, and thus enabling the latter to withstand the attacks of cold on the viscera ; he therefore considered exercise as very useful in preparing the body for the employment of the cold-bath. He also considered the warm-bath to be useful on the same principle ; as do many of the moderns. *

From this important consideration, it follows, that persons, in whom the powers of re-action are feeble, in order to induce a beneficial glow of warmth after cold-bathing, require the agency of the full force of their vital powers, previously to subjecting themselves to its influence. It is therefore observed, that such persons bathe with much greater advantage, two or three hours after breakfast, than before, as previously to this time, the circulation has not acquired its due degree of energy throughout the system.

Although the employment of friction on the surface of the body during bathing, by means of

* Galen : Method. Medendi.

the flesh-brush, may prove an auxiliary of high utility in the use of the warm-bath, I cannot conceive its influence to be, by any means, commensurate with the disadvantages of long exposure to cold.

After bathing, gentle exercise will be found by invalids generally very advantageous, as it serves to continue that increased action, which it was the object of the bath to promote ; but if this exercise be carried to the extent to produce perspiration, the cold occasioned by evaporation, will often be destructive to the benefit which would be otherwise derived from the bath.

There can be no doubt, that the most injudicious of all modes of sea-bathing, intended for the improvement of health, is that of remaining long in, or beneath, the surface of the water ; or, what is often still more injurious, exposing the wetted surface of the body to the influence of the cold wind, rendered, as before observed, more chilling, by more rapidly depriving the body of that heat which is necessary to produce evaporation, for in this way torpor and debility of the extreme vessels can alone be induced.

On the same principle, it is desirable that an invalid should avoid exposure to cold immediately before bathing; the immersion should be conducted, and the clothes resumed, as quickly as possible.

The necessity for speedily resuming the clothes, and protecting the body from the action of cold winds after sea-bathing, is interestingly shown in the fact, which has been proved by repeated experiments, that during two minutes after immersion, the temperature of the body sinks several degrees, and then gradually rises during the succeeding fourteen or fifteen minutes, to within a degree or two of its original temperature.

But if, at this period, the body be exposed to a cold air, as a north or north-east wind, at a temperature of 44° or 45° , its heat rapidly sinks again, even below that occasioned by the immersion.*

* In cases of shipwreck, it has been found far better to keep the body constantly immersed in the sea, than to subject it to repeated alternate immersion, and exposure to cold winds; as persons have survived twenty-three hours of constant immersion, with the sea at its lowest temperature, that of 38° or 40° ; when, at the same period, four hours only

In drying the surface of the body after sea-bathing, it is perhaps an advantage to use napkins which have been previously dipped in sea-water and dried; as by this simple expedient, the saline particles are less likely to be entirely removed from the skin, than by the means usually employed.

From what has been before stated, it is obviously by no means judicious for debilitated persons, to immerse their bodies in the water more than once, at each bathing; since each immersion calls on the system for a new partial reaction; which reaction, while it exhausts the animal powers, is rendered inefficient in proportion to its repetition; until an invaluable means of imparting strength becomes converted into one of increasing weakness; it is therefore even better to remain a short time immersed, than to repeat the immersion.

Dr. A. P. Buchan, in his useful observations

have been destructive to life, in one of the most healthy of the crew, who was exposed to these alternations; the difference arising from the more cooling agency of the wind, materially aided by the evaporation it occasioned.

on sea-bathing, to which we are much indebted, observes, that he has generally found it to be prejudicial at its usual temperature, in such constitutions as are commonly denominated phlegmatic, where the pulse is naturally feeble, the countenance pale, and the muscles flaccid, although independent of the existence of disease.

So assuredly, on the contrary, in accordance with general experience, are the greatest benefits derived from it, in persons who tend to the opposite, or the sanguine temperament; and on the same principle, the sea-bath at its usual temperature, is best adapted to the earlier periods of life; as it is least suited for such as have attained an advanced age, and whose debility in the circulating system, is indicated by a weakness and turgescence of the veins, but more especially, if this be united with a full and plethoric habit, as is by no means uncommon in such persons as have been long subject to gouty affections.

I shall, lastly, add, that should a want of reaction in the system after sea-bathing become apparent, in continued chilliness, a pale countenance, head-ache, or languor; its return should

be promoted by internal, and external means, and the latter may usually be the best effected, by the application of warmth to the pit of the stomach; which will be most conveniently and readily imparted, by means of a bottle of hot water surrounded with flannel.

Under such conditions of the constitution, cold sea-bathing should of course be by no means repeated, but in such cases, the tepid sea-water bath, may often be employed with great advantage as a substitute, and its temperature may be gradually diminished, as has been before mentioned, with the increasing powers of the system.

WARM SEA-WATER BATHING.

PLINY, whose unparalleled industry gave him an accurate acquaintance with the writings and medical practice of Celsus, who lived about fifty years before him, and of the other physicians preceding, and during his own time, which was so short a portion of the first century, has left us an interesting memorial of the thus early application of seawater externally, which is, I think, one of the best illustrations of the early advancement in the application of the more simple curative means, which we find in the history of medicine; as comparatively very little variety has taken place in its use since that period.

As a discutient remedy, it was then very highly esteemed, and seems to have been constantly employed to remove the discoloration occasioned by

bruises and contusions, and to resolve and discuss tumors ; and in this capacity it formed a chief ingredient in several pharmaceutical preparations.

The use of hot sea-water was also known in those days, to possess peculiar efficacy in pains and other affections of the tendinous structures ; sea-water appears indeed to have been generally used in rheumatic complaints ; and was thought to assist in the union of fractures, probably from its invigorating tendency ; it was also much recommended in several of the eruptive diseases of children. *

Having endeavoured to describe the more general operation on the system, of the cold sea-bath, I may observe of the warm, that while it is capa-

* “ *Medendi modus idem et in marinis erit, quæ calefiunt ad nervorum dolores, ferruminandas fracturas, ossaque contusa : item corpora siccanda, qua de causa et frigidum mari utuntur.—Aquam vero maris per se efficacioris discutiendis tumoribus putant medici ;—testium quidem tumori fovendo non aliud præferunt. Item pernionum vitio ante ulcera. Simili modo pruritibus, psoris, et lichenum curationi. Lentes quoque et tetra capitis animalia hac curantur ; et liventia reducit eadem ad colorem.—Sufficitur eadem cum aceto capitis doloribus.*”

Plin. lib. xxxi.

ble of invigorating, by equalizing the circulation throughout the entire frame, its action is no less that of a soothing stimulus to the nervous system, producing by its external operation, that kind of influence, which is derived from the more grateful aromatics, or mild cordials, when taken internally.

But it has this very decided advantage over the latter, that the slight exhilaration it produces, is not succeeded by that depression, which is usually induced by other classes of stimuli; its action being less powerful, and the impressions it produces more general and permanent.

On the surface of the skin, by relaxing the cuticle, and rendering pervious the pores;* it has the healthful tendency to remove every obstacle which impedes the due performance of the superficial secreting organs, whether of sensible fluids or insensible exhalation; while on the circulation, its immediate operation is like that of the re-ac-

* For the cuticle, which is a mere insensible shield to the true skin, and perforated by the exhalent pores, is acted on by external agents, much in the same manner as dead, disorganized matter, though the same by no means applies to the cutis or true skin.

tion occasioned by the cold-bath; summoning into the extreme vessels on the surface, a free and equable distribution of their fluid.

Such then are some of the effects, which have so long recommended the warm-bath to our use, in every age and country, there being comparatively few diseases, in some stage of which, it has not been deemed by medical authors, decidedly beneficial; while its reputation is founded on so firm a basis, that its employment continues to increase, in proportion to the progressive advancement of medical science.

But the efficacy of warm bathing is not likely to be better advocated by any eulogium, than by the fact, that Bath, Buxton, Aix-la-Chapelle, Baden, and many other places much resorted to by invalids, owe their celebrity to the means they afford of employing this simple remedy.

And yet, if in addition to advantages thus obtained, we take into consideration, the more active agency of the large proportions of saline ingredients contained in sea-water, and assign to them no more than a superior stimulating influence on

the surface of the body, I believe that the benefits of the warm-bath, in the great majority of cases, are increased in the same proportion.

In support of this opinion, it appears to me, that the very philosophical experiments and observations before adverted to, of Dr. James Currie, to whom mankind at large have reason to feel so highly indebted, very importantly tend, since whatsoever difference in action the system experiences between the effects of salt and fresh water when cold, is doubtless equally imparted when warm.

In one of the experiments of this very useful enquirer, after having subjected an individual, on several successive occasions, to the action of salt-water, during a certain period with impunity, he ventured to repeat the experiment with fresh-water, but the result was the speedy production of illness; by which the popular opinion was confirmed, of the greater danger of being wet with fresh, than with salt-water.

He therefore judiciously recommends to those to whom a choice alone exists, of being wet with either salt or fresh water, to choose always the former; a circumstance, however, well appreciated

from experience, by seamen, and which has induced many wisely to wring out their clothes in sea-water, when wetted by heavy showers, in case of shipwreck.

The more particular influence of the warm sea-water bath on the system, I shall have occasion to mention in treating on the diseases in which coast advantages are most availing; yet some of the properties which it possesses, in common with the warm bath of fresh-water, may be here noticed.

The most obvious and important of these, is its extraordinary power of relieving pain, a benefit which renders its agency invaluable in so many of the most distressing afflictions; but though this has been so well known and appreciated from the earliest ages, it is yet a property difficult of satisfactory explanation.

But in addition to its soothing power on the nervous system, from whence such an effect is doubtless primarily derived, it is capable, by a peculiar sympathy, of extending the same influence to the muscles, however remotely situated from the surface of the body; in this way arresting their inordinate action, and thus overcoming the effects

of spasmodic disease, in perhaps every form of which it is capable of affording a greater or less degree of alleviation.

It is however in tropical climates more particularly, that its agency in this capacity is most constantly sought, and valued; from the very unfortunate frequency of these most distressing diseases. There are nevertheless, in our own country, too many, connected with similar causes, in which its employment is essential to the alleviation of suffering; as the various calculous affections, and those in particular which are connected with a spasmodic contraction of the biliary ducts.

In the numerous chronic diseases incident to the decline of life, the warm sea-water bath is often found to be of peculiar advantage; from its obvious power of rousing the energies of the circulation, and thus restoring that irritability in the muscular system, which it is often the effect of these tedious disorders to impair.

By promoting the action of the exhalent vessels, and re-establishing the balance in function, between them and the absorbents, through the immediate

sympathy existing between these systems, it becomes, in combination with exercise or other means, a very successful agent in the removal of dropsical enlargements of the limbs; or of other effusions into the cellular membrane.

The greatest benefits are also constantly derived from the use of the warm sea-water bath, in a great variety of diseases arising from debilitating exciting causes; whether they assume a spasmodic character, are dependent on a diminished energy in the process of nutrition, or are referable to obviously impaired powers in the circulating system, from repeated hemorrhages, or other causes.

It is far from my intention to occupy the time of the reader, by noticing some fashionable modifications of the bath; since I humbly conceive their superior advantages to be very equivocal. Among the varieties however in the application of water to the surface of the body in this country, the shower and vapour-baths are of so much importance, that a few remarks concerning them may be useful to the invalid.

The shower-bath, as it is usually employed on

the coast, is a modification of the cold, while the action of the vapour-bath is in most respects analogous to that of the warm.

In the application of the shower-bath however, invalids derive the greatest benefit from having its temperature more frequently varied to suit the circumstances of the particular case; as it may be thus successfully had recourse to, where it would otherwise be inadmissible. By such means, it becomes a remedy adapted to the various stages or states of disease, while it has the advantage of being very convenient in its application.

Where also, there is danger of too great an abstraction of heat from the system, from the volume of water in the sea-bath, the shower-bath is often eminently useful.

When employed cold, its mode of action is the same as the former; but the shock it produces on the nervous system, being usually more transient, it is often on this account to be preferred.

The vapour-bath is thought by some physicians to possess advantages very superior to those of the warm-bath, by producing a greater degree of re-

laxation on the surface of the body, and thus exciting a much more powerful action on the exhalents than takes place when the body is immersed in a fluid of so much greater specific gravity.

But as the benefits resulting from each, depend more on their subsequent effects, than on those arising during the operation of the bath, this argument loses much of its force; and when we consider, that such a bath cannot communicate the useful stimulus occasioned by the saline ingredients of the hot sea-water, as steam does not hold their particles in solution, its superiority does not appear so generally decided as has been supposed.

I am however very willing to admit, that cases frequently occur, in which the vapour-bath is nevertheless found to be productive of peculiar efficacy, and in some instances, I should decidedly prefer it to any other.

I shall now proceed to the consideration of some of the diseases, in which the advantages attending a coast residence are more decidedly capable of demonstration; my object and endeavour being to present to the invalid, or general reader chiefly,

such a view of the nature and causes of these complaints, as may assist in enabling him reasonably to estimate the value of those natural curative means, which a sheltered coast is capable of affording.

OBSERVATIONS
ON
DISEASES IN WHICH A COAST RESI-
DENCE IS MOST BENEFICIAL.



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ON

INDIGESTION AND HYPOCHONDRIASIS.

THE mutual sympathies and dependencies, which exist between mental and corporal suffering, have at all periods excited the attention and interest of physicians, and are, in reality, more or less observable in almost every disease.

In no instances, however, are these more painfully exhibited to us, than in the close connexion subsisting between hypochondriasis or low spirits, and the more severe forms of indigestion; for although these affections have been separately

known since the time of Aristotle, they present so great an affinity, that it is yet often difficult to determine their true distinctive characters.

The train of causes also, which is productive of benefit to the one, being capable of exerting a corresponding influence on the other, for the sake of convenience, I have been induced to arrange them under one head.

In the former of these diseases, it is even yet, in some measure doubtful, whether an affection of the mind or of the body, constitute the primary disorder. It is not therefore surprising that a difference of opinion should have existed in the minds of the ancient physicians regarding its nature.

Hippocrates, Galien, and Celsus attributed *Depression* to a depraved state of the bilious secretion, or the production of black bile,*

* Black bile, concerning which the ancients have written so much, was supposed to be a vitiated secretion, produced by a perversion of the liver with other organs. It a corrupted action and constitution on the four humours of the body mentioned by Hippocrates the others being blood,

while Diocles, like some moderns, assigned its seat to the stomach. Sydenham and Willis, however, thought it dependant on a peculiar condition of the mind, from which a sympathetic influence was communicated to the stomach, and this may be considered as the generally received opinion in the present day.

But the highly important office which has been assigned to the stomach and digestive organs, of assimilating our food, and rendering it fit for the nourishment and support of the body, has not only imposed on it this intimate connexion with the brain, but, through the medium of this latter organ, with every other part in the animal system, separately, and conjointly. Hence arises that general sensation of exhaustion derived from an empty stomach, and the invigorating influence which immediately succeeds its repletion.

On the state and condition, therefore, of the digestive organs, depend our health, spirits, nou-

bile and phlegm, whence, as one or other of these prevailed in the constitution, the person was said to be of a melancholic, sanguineous, bilious, or phlegmatic temperament.

ishment, and the very existence of our frame; and it is thus that health and disease are so readily communicable between the stomach and digestive functions, and parts and functions remotely allied to them.

On this account also, during inflammation and other affections of the stomach, a greater loss of strength takes place, than in the inflammation or disease of perhaps any other organ, and it was doubtless from this same all prevailing sympathy, that some of the ancients were led to believe the stomach to be the seat of the soul.

The stomach and alimentary canal, being composed of delicate muscular and nervous tissues, endowed with a high degree of excitability, or susceptibility to receive impressions, exert, in a state of health, their peculiar actions and powers on such substances as are conveyed into them as nourishment for the body; while the solvent and other fluids, received from the tributary glands by which they are secreted, acting as auxiliaries in the process of assimilation, must, in order to insure the continuance of health, be uniform in their quantity and quality.

Independently, therefore, of those sources of injury to the digestive organs, derived from a constitutional and sympathetic origin, if we reflect on these circumstances, and the innumerable causes for their derangement, more constantly in operation, arising from the nature, quantity, and varied qualities of our food, we cannot be astonished to find that various states of indigestion are among the most prevailing of our afflictions; as is so especially evinced in the many anomalous indispositions of this kind, to which the inhabitants of crowded cities are so peculiarly liable.

Languor, lassitude, various morbid tints of complexion, head-ache, palpitations, heart-burn, and loss of appetite, are, comparatively, very few of the innumerable indications of general derangement, dependent on that of the digestive functions; which disorder, if not timely counteracted, ultimately assumes, according to the nature of its exciting causes, the characters of several distinct and obstinate forms of disease, including, as Dr. Marshall Hall observes, various disorders of the general health, chlorosis, and organic derangements of the liver, and of other viscera equally

important; a class of diseases, having on each other an immediate dependence, and assuming forms and symptoms immensely varied, as has been demonstrated by that accurate observer.

There is indeed, I think, every reason to believe, that the most aggravated forms of hypochondriasis, are not unfrequently induced by protracted derangement of the digestive organs, as there are few cases of the former, which are not preceded by the latter, to a greater or a less extent; and there is certainly no cause more active than this, in the production of that irritability, despondency, defect of memory, and confusion of thought, which are the characteristic attendants of that disease.

For it is too evident, that such symptoms, although at first merely indicative of deranged digestive functions may, by their continuance, become the primary affection; when they will, in turn, by re-action, render the general derangement more complete and difficult to subdue.

But although the chemical, stimulant, or other actions, produced by our food, so often exert a pernicious influence on the digestive organs, and

become the more active causes of indigestion; there are others of a different character, too constant in their operation, and too powerful in their effects, to be disregarded; amongst these are cold and humid residences, sedentary occupations, and close application to particular pursuits.

The sympathetic action existing between the stomach and the skin, has been very long observed, and is daily taken advantage of, in the exhibition of medicines.

Any cause therefore, which is capable of impairing the healthy functions of the latter, usually communicates its impressions to the digestive organs also; hence Dr. W. Philip has well observed, "that the stomach not only suffers by the general debility and relaxation induced on the nervous, and through it on the muscular system, by a cold and humid atmosphere; but also by the peculiar effects of such an atmosphere upon the skin;" and it is doubtless, partly in this way that the system generally becomes so powerfully influenced by atmospheric causes.

To the same natural causes may be chiefly

assigned much of the national character of mankind, as we see it existing in different countries.

Thus the inhabitants of the southern parts of France and Italy, living beneath the glowing influence of an unclouded sky, have their nervous and muscular systems subject to constant excitement, whence a vivacity of character predominates; while, on the contrary, as we advance northward, into regions which are more under the influence of fogs, and a clouded atmosphere, vivacity gives place to sombre thoughtfulness, and a diminished disposition to bodily exertion.

But we need not extend our observations so remotely from home, since even the effect of change of seasons in our own country is so powerful, as to produce a corresponding change in our sensations, nay, almost in our very temperament; and exerts by no means a less marked influence on the functions of the stomach and digestive organs.

For the effects of a cold and humid atmosphere, in the production of their derangement, in few kingdoms operate more frequently, or powerfully, than in Great Britain; and there is every reason

to believe, that a considerable proportion of those disorders to which we are most particularly liable, emanate from this source alone.

The powerful and injurious effects of such an atmosphere on the constitution, in arresting exhalation, may be inferred from the circumstance, that by the lungs, and the exhalents on the surface of the body, according to M. Seguin's calculation, no less than fifty-four ounces of fluid, are usually thrown off in twenty-four hours, in the form of insensible perspiration; and in a dry air, of a temperature of 71°, Mr. Cruickshank informs us, that he has lost seven pounds by these means, in an equal period.

But there are perhaps few of the more aggravated forms of hypochondriasis, and of indigestion, which may not reckon among their most active causes, some of a moral, rather than a physical nature; among which, too great mental application and excitement, and especially when connected with sedentary habits, is the most frequent and prolific.

In the former affection this is more particularly

the case; and we therefore find it confined chiefly to those in whom mental exertion has been most called into action; from the tendency in the mind to acquire an increased susceptibility to impression from the effects of over exertion.

Thus, whilst he, whose sensibility, constantly fostered or increased by continued mental excitement, is rendered feelingly alive to every joy and every sorrow, from which he derives so full a measure of their influence; the rustic, who from infancy has been employed in the mechanical occupations of a country life, is kindly exempted from great mental anxiety, and morbid susceptibility; and hence how often may we witness his misfortunes, supported in a manner which excites our admiration.

It is unfortunately too generally true, that whilst there are scarcely any states of disease, which call more loudly and justly for our sympathy, there are none on which so little is often bestowed, as hypochondriacal affections; conditions in which the mind is rendered so preternaturally sensitive to every impression, and susceptible of pain, from

so many sources ; indeed, by the common observer, such an affliction is too often regarded rather with impatience, than soothed by those means of alleviation demanded by an acute and distressing disorder.

This often originates from the circumstance of there being nothing sufficiently evident in the symptoms of these diseases, to induce a belief that such in reality exist, as the patient neither suffers from fever, nor urgent pain ; and it is thus that the supposition so frequently arises in the minds of relatives, that the evils complained of, are the mere effects of listlessness, and a want of disposition to assume a cheerfulness of deportment ; a condition utterly incompatible with existing circumstances.

Great anxiety, and vexation, or an otherwise "perturbed state of the mind, whether," as Dr. Cadogan remarks, "it appears in the form of anger, envy, disappointment, resentment, discontent, or sorrow," forms another most active agent in the production of some chronic diseases, but more especially those connected with digestion ; nor are there any causes, where such already exist,

which are more powerfully opposed to their removal.

The first, and immediate effects of violent grief, usually display themselves in a deranged action of the stomach; the agitation which the brain experiences, powerfully affecting the functions of the former, in common with the other organs concerned in the process of assimilation; whence their secretions becoming impaired, or otherwise rendered inefficient, general derangement of the system frequently results.

Sometimes the change which is thus induced in the secreted fluids concerned in digestion, arises from a material increase in their quantity; at others, their quality is greatly affected; and occasionally they are altogether suppressed.

The circulation, from similar causes, is no less disturbed; for the heart, sympathizing in the irregularity induced by the nervous system, becomes liable to deranged action, and subject to those flutterings and palpitations so often attendant on such disorders.

In grief which is less violent, but of longer continuance, the results, though not so obvious,

being then more slowly and insidiously induced, are often no less distressing; frequently, like intemperance, laying the foundation of that emaciation and debility, which gives origin to so numerous and varied a list of diseases.

From these very brief allusions to some of the more powerful causes which induce such disorders, it will, I think, have been made sufficiently apparent, that their greatly varied nature, and the diversity of their results, render the prevailing symptoms in each case, almost peculiar to the individual affected; these being subject to modification, from age, sex, temperament, duration of the disorder, occupation, and the general habits of the patient.

It may, however, be desirable to notice more particularly, some of those striking characters, which are alike common to both these diseases. Irregularity in the action of the liver, and other organs connected with digestion, and consequently of the bowels, may be equally regarded as a symptom, and the immediate cause, from whence many of the other symptoms more urgent and distressing, originate; for on this cause alone,

mental anxiety hardly less frequently depends, than on those of a moral nature.

From an irregular performance in the functions of the liver, and other important glands, not only is torpor produced in the alimentary canal, by their secretions being vitiated or suppressed; but these are often carried back into the system, and by communicating their deleterious impressions to the nerves, and through them to the brain, become productive, of more or less cerebral excitement, or mental depression, in proportion to the period of their continuance.

Hence there arises head-ache, irritability, irascibility, and very frequently, a high degree of despondency; with listlessness, drowsiness, incapacity for motion, and trembling of the limbs. The countenance becomes more or less pallid, or discoloured, and especially so around the eyes. The tongue exhibits a lighter tint than in health, and a granulated appearance. These symptoms are often further accompanied by a sense of weight, oppression, and sinking at the pit of the stomach, with heart-burn, flushing of the cheeks, acidity, palpitations, and an inability to enjoy repose.

Such characters, however, constantly and necessarily vary in accordance with the circumstances to which I have before adverted, and particularly in relation to the presence or absence of local disease.

Disorders of this nature, being at first therefore chiefly connected with the mind through the sensations conveyed to the brain, by the impaired functions of the stomach and alimentary canal, it is comparatively rare that local disease displays itself early in these affections; and it is usually by their protracted influence only, that such ultimately ensues.

In this case, those parts and organs which have been most subjected to deranged action and excitement, begin to exhibit their powerful influence by an alteration in structure.

Such most frequently happens to the liver, pancreas, and spleen, as also to those particular situations in the alimentary canal, which have been most exposed to the effect of the general derangement, more especially, the pyloric orifice of the stomach; all these diseases therefore, presenting in their turn, their own peculiar symptoms, in

addition to those which have been already enumerated, render it very evident, that no class of disorders present so complicated a character as those at present under our consideration.

From what has been said also, the close connexion existing between these complaints, will probably have been rendered equally apparent; and as the presence of the one is in all cases combined with a greater or less number of those symptoms which characterize the other, it becomes as certain, that similar remedies are more or less applicable to each disease.

To invalids therefore, labouring under either of the disorders thus noticed, whether separately or conjoined; whether their prevailing symptoms be those of hypochondriasis, or of impaired digestion; and from whatever cause they may have originated; it may be confidently asserted, that there are no auxiliaries, or rather chief agents, so efficient in their removal, as change of situation, and change of scene.

But this is rendered peculiarly obvious, if the change undertaken, be to a situation whose advantages are so materially increased, as are those of

the coast, by the possession of natural sources of interest, most effectually calculated to allure the mind from its accustomed habits of thinking and of feeling.

To the inhabitants, therefore, of large and populous towns, such is more particularly applicable, while those situations which combine the greatest degree of beauty, with the most interesting diversity, are generally the most successful in their effects.

Such a change becomes also of the first importance, by suddenly interrupting that unvaried routine of similar pursuits, and their attendant anxieties, which so indulgently nurture these diseases, and while persisted in, so often frustrate all attempts at their removal.

The opportunity which is thus afforded of participating in the simple customs of the country, is another advantage of the greatest weight in throwing off the bondage of such complaints, especially to those who, when at home, assimilate in the more sophisticated habits of a great metropolis; while the favourable influence afforded by the atmosphere, and other local advantages more par-

ticularly pertaining to our southern shores, may be justly considered as ranking no less highly in the removal of these disorders.

It was observed by Celsus, that the air of that situation in which a disease originates, is the worst adapted for its alleviation or cure, and we have every reason to believe the assertion to be generally correct; as improvement is constantly found to take place on a change of situation, although no evident cause can be assigned for it.

The latter clause is however by no means applicable to a removal from any part of the interior of a kingdom, to its coast; and especially, when the change effected is from a populous town or district; for the salutary properties of a sea atmosphere, and the other advantageous circumstances which a coast situation combines, are sufficiently apparent to all.

The mild, and ever playing breezes of the sea, are known to be no less peculiarly adapted for restoring enfeebled energies, and for effectually dispelling languor and lassitude of body, by their salubrious and vivifying powers, than the survey of its

ever-varying surface, is calculated to exhilarate and elevate the mind.

But there are few means more efficacious in the removal of indigestion and lowness of spirits, than exercise and bathing; on both of these, therefore, as forming a part of coast advantages, in relation to such affections, I shall offer some observations to the notice of those invalids who may have occasion to employ them.

It has been already stated, that to ensure the beneficial effects of the cold sea-bath, a much greater degree of constitutional vigour is required in the individual, than is necessary in employing the warm.

From this circumstance, therefore, it will be readily perceived, that, although there are many cases of such indisposition, in which the cold sea-bath is to be preferred; yet, as protracted states of these diseases are frequently found in elderly persons, where, in addition to the debility they have induced, the natural powers of the constitution are on the decline, the warm sea-bath may often be considered a more suitable remedy.

And, as the great object in such cases, is to in-

crease the general strength of the system, and at the same time to obviate that obstinate torpidity of the alimentary canal, which is so often a leading feature of the disease ; when employed in aid of internal remedies, and under the circumstances last adverted to, a bath of from 93° to 96° will usually be found the most successful practice.

By its means, a glowing, and invigorating sensation is produced, followed by a free, insensible perspiration ; to restore and preserve which, is one of the most important indications in the cure of these complaints, from the powerful sympathetic action which exists between the exhalents on the surface of the body, and the secreting surface of the alimentary canal.

When invalids, who are thus affected, first arrive on the coast, it is not uncommon for them to experience a sudden increase of appetite ; which in delicate and deranged states of the digestive organs, requires much caution on their part, not to indulge too freely, lest a still greater degree of derangement be subsequently induced. But when, on the contrary, this is so far from being the case, that the appetite continues inadequate to

to the supply of nourishment demanded by the system, it is often found advantageous to have recourse to the bath an hour or two before dinner ; it being commonly, as it has been remarked, “ followed by a degree of cheerfulness, and a sensation of refreshment of considerable duration, which is highly calculated to promote a disposition to enjoy food ; a condition of such great importance to good digestion.” It is evident that the ancient Greeks were fully acquainted with this circumstance, and it was on this account that they had recourse so frequently to their tepid baths before dinner.

But the warm-bath, when employed in the evening, is productive of other effects no less desirable in these diseases ; for as Dr. John Reid has observed, “ it will often induce sleep, when the more direct and accustomed opiates fail ; and with all its beneficial tendency, it is followed by none of those evil effects, that are apt to arise from the drugs more generally employed to allay uneasiness, to restore composure, and to conquer the obstinacy of an involuntary and unnatural vigilance.” This soothing influence is indeed a result,

which so frequently follows its employment, that in many other cases of disease, attended with great nervous excitement, where it is difficult to obtain rest, the use of a warm-bath often proves a most efficacious expedient.

In the more advanced progress of cure of these disorders, during the earlier or middle periods of life, cold sea-bathing becomes, in its turn, a remedy of immense importance; and I think that in these, as in most other diseases, it should always be had recourse to in preference to any other kind of bath, when it can be employed with safety; as its effects, conjoined with those of a pure air, are so eminently capable of renewing that vigour and excitability in the muscular and nervous systems, which it is the effect of these disorders, as also of a confined or vitiated atmosphere, to impair.

In speaking of cold bathing, I cannot avoid again adverting to the propriety, indeed the necessity, in debilitated persons, of employing gentle exercise previously to immersion; as, in many cases, it may be had recourse to under these circumstances, with perfect safety, and great advantage, where otherwise it would prove prejudicial.

The idea of its being safest to go into the water perfectly cool, has often been productive of very injurious consequences.

Dr. Currie justly remarks on this subject, "persons" moderately "heated, often think it necessary to wait on the edge of the bath, until they are perfectly cooled; and then plunging into the water, feel a sudden chilliness, which is alarming and dangerous. In such cases, the injury is generally imputed to going into the water too warm; whereas, in truth, it arises from going in too cold.

"But though it be perfectly safe to go into the water, during the earlier stages of exercise, nothing is more dangerous than this practice, after exercise has produced profused perspiration, and terminated in languor and fatigue; because in such circumstances, the heat is not only sinking rapidly, but the system parts more easily with the portion that remains."

The necessity for a certain degree of external warmth, in debilitated persons before bathing, is also proved by the fact, that when the heat of the body has been supported by a warm clothing of flannel, or by any other means, before immer-


THE INFLUENCE OF THE COAST.

The temperature does not sink so low by two or three degrees from the action of the cold sea as when this precaution has not been taken.

The sea-bath not unfrequently produces an efflorescence on the surface of the body, and it is interesting to observe, that where it occurs, the bowels generally sympathize with the skin in an increased action. This efflorescence may, therefore, be usually regarded as a satisfactory indication of the advantages which may reasonably be expected from its judicious employment.

The beneficial influence of sea-bathing on the stomach and digestive organs, may also be inferred, from the sympathy which is no less interestingly exhibited between them and the skin, by its capability of removing thirst; the exhalents of the stomach and fauces pouring out their fluids, when those on the surface of the body have been excited to action by the bath.

It is no less probable, that by a similar removal of stricture of the extreme vessels, thirst is so immediately allayed by a draught of cold water; cold water if drank in larger quantity, in its



turn, very speedily and sensibly increases the action of the exhalents on the surface; whence, in the north of England it is, I find, a provincial custom, to excite perspiration by drinking cold water at bed-time.

There are comparatively few chronic diseases, in which moderate exercise is not more or less advantageous; but in those connected with derangement of the digestive functions, this is more peculiarly the case, owing to the immediate dependence subsisting between some of the organs, concerned in digestion, and the action of the external muscles.

Next also to the operation of aperient medicines, exercise avails most in supporting the peristaltic action of the bowels; but, independently of this influence, the stimulus it affords to the circulation is of the highest importance, by sustaining a due exhalation from the surface of the body.

Exercise, however, taken for this purpose, must be regulated by the dictates of prudence, or its object is readily defeated; for, although a tendency to moderate perspiration is an indication of health, any cause which excites its rapid secretion, is itself

debilitating, by hurrying out of the system fluids, which might have been more usefully appropriated; and especially where an adequate supply of sustenance cannot with propriety be taken; since, in persons of healthy and robust constitutions, who with impunity subject themselves to free perspiration from laborious exercises, so very large a proportion of solid and fluid sustenance is daily required, to restore the equilibrium.

This necessity is rendered strikingly obvious when it is considered, that those employed in iron-foundries, and in some other occupations, are computed to lose, by their exhalent pores, from one-sixth to one-fifth part of their own weight, daily.

The cold also, which is produced by the evaporation of sensible perspiration, is itself debilitating, and injurious to a frame already enfeebled, on the same principle that chilling fogs are so pernicious to delicate constitutions.

But the very formation of perspiration seems to have the property of depriving the system of its heat, independently of what it removes by evaporation; for the same diminution of our tempe-

rature occurs after profuse perspiration, though this be excited in a hot bath where no evaporation can take place, as when the latter is induced under the influence of the air.

The importance of exercise in indigestion is so evident, that it is difficult to conceive the possibility of a perfect action existing in the alimentary canal without it; from its immediate connexion with, and power over the healthful function of æcretion, and more especially that of the liver.

The secretion of this organ being, unlike those of other glands, derived from the venous system, and the blood in the veins, unlike that of the arteries, being greatly influenced in its motion by external agency, it becomes obvious that the mechanical pressure of the muscles during bodily motion, by propelling forward the fluid contents of the veins, thus greatly facilitates and increases the operations of this important viscus.

So dependent indeed is the function of the liver on this external agency, that the torpor of the bowels, which it is one of the principal offices of the bile to obviate, induced by sedentary habits,

arises I believe chiefly from the deficient action of the liver.

Those consequently who take much exercise, rarely require the aid of aperients and by adopting similar means, the necessity for such medicines in cases where they have been long and extensively had recourse to, usually becomes less imperative.

On similar principles persons actively occupied, are enabled, by the greater abundance, and more perfect state of their digestive fluids, to employ with impunity an aliment of the least suitable kind; while the more sedentary are often unable to digest such as is the most wholesome and nutritious.

Horse exercise is perhaps, as Sydenham has remarked, generally speaking, more useful than any other, in these affections; but this, I conceive, arises chiefly in consequence of the patient being usually enabled to employ it, without producing an equal degree of fatigue, and thus remain in the open air during a much longer period, than by walking; but to ensure the good effects of either, it should be had recourse to with regularity and moderation.

Another kind of exercise, which experience has found to be peculiarly useful in indigestion, and especially where others prove too fatiguing, is that of sailing. This kind of motion has doubtless contributed to the very numerous cures which have been effected by a sea voyage, when other means have been found ineffectual.

But it is at the same time no less certain, as Dr. Philip observes, "that the sickness which is often induced by it, by the sudden general excitement, and other effects it occasions; frequently contributes its share in repelling the effects of these diseases, and ultimately in restoring the impaired tone of the digestive organs."

It may be scarcely necessary to add, that bodily exercise of whatever kind, should never be undertaken immediately after a meal, and that, as far as possible, it should be combined, or caused to alternate, with light and cheerful occupation of mind.

After what has been said in reference to local advantages, it will not of course be conceived, that however perfect may be their adaptation to the removal of chronic disease, they alone can be sufficient to effect so desirable an object, and thus

compensate for the care and attention of the patient in reference to other means no less effective ; as is so decidedly instanced in regard to diet ; for, from the change which is perpetually taking place in the fluids, and consequently in the solids of our bodies, the vast importance of a constant attention to the nature and quantity of our food, is far too apparent to be disregarded, in maintaining a state of health.

But, when those organs, or functions, whose office is to render the food fit for the production of such wonderful changes, are themselves in any way deranged or diseased, it then becomes no less evident, how much greater is the necessity for its judicious selection and regulation.

I must observe therefore, that patients do very wrong in considering themselves, on arriving at the coast, absolved from that restraint which may have been imposed on them at home ; though I perfectly accord in the observation, that eminent writers in the present day on the subject of diet, have occasionally allowed themselves to be led into extremes, between which, as in other instances, it is perhaps safest and best to proceed : as, for in-

stance, between the total avoiding of all fluids during meals, which some have been strenuous in recommending; and, on the other hand, leaving the quantity of solids or fluids taken, to the existing inclinations of the patient, which the experience of ages has shown to be injudicious.

There are however few persons labouring under impaired digestion, whose experience has not imparted to them a tolerably correct idea of the relative digestibility of various kinds of food; in their selection, therefore, much benefit will be derived from a particular attention to this circumstance.

An invalid, on arriving at the coast from the interior, should also, as before remarked, be careful not suddenly to augment the quantity of food taken at each meal, which he is too often disposed to do, in consequence of the material increase of appetite which he then not unfrequently experiences.

It is not less necessary for the patient to guard against a too powerful sensation of hunger, which in these diseases is almost equally injurious with that of too great repletion.

I may also add, that fish, which is generally partaken of with great satisfaction by invalids arriving on the coast from the interior of the kingdom, does not form, in greatly impaired digestion, so suitable a diet, as when the digestive organs have acquired a greater degree of tone ; ill effects arising from its too free use, having fallen under my notice in several instances.

Fish is, I conceive, not only rather more difficult of digestion than other kinds of animal food ; but it certainly affords less nourishment, and consequently, requires a greater bulk, for the production of the same advantages ; which to a very debilitated stomach is a material objection, as is also the employment of those condiments which usually accompany its use.

The necessity for, or the extent to which, remedies, more strictly medical, are to be employed, must of course depend on the nature and circumstance of each case.

In many, the use of alkaline or other antacid medicines, will be found far more efficient in combination with coast advantages, than elsewhere ; chalybeates are likewise, in certain states of these

diseases, among the most useful of all internal remedies; though in other cases, the employment of the vegetable tonics is more beneficial than that of any which are derived from the mineral kingdom.

In such disorders, the operation of purgative or aperient medicines is usually more or less imperative; and in the latter capacity, there are sometimes none more useful, than that which nature offers to the resident on the coast.

With this view, the efficacy of sea-water, although perhaps too much overlooked in the present day, has been more or less highly appreciated from remote antiquity, and I believe that those who have the most frequent opportunities of witnessing its effects when judiciously taken, have reason to be the greatest advocates for its employment.

Nothing however proves more injurious to the reputation of a remedy, than too high an eulogium on its character, as such can only lead to disappointment; and sea-water, in common with many others of great utility, appears to have met with this misfortune, having had assigned to it, by seve-

ral who have written expressly on its use, various properties and powers which it could not reasonably be expected to possess.

But sea-water, if properly had recourse to, in many states of chronic disease, becomes a highly valuable internal medicine; by the gentle action which it produces on the intestinal canal; and consequently in none more obviously, than in those in which this forms so important a seat of derangement.

It often happens that the cold sea-bath produces a sympathetic action on the bowels; which I must again repeat, is a satisfactory indication of the important influence this agent may be expected to exert on these diseases, when properly had recourse to.

When therefore it is desirable to combine the advantages of sea-bathing with the internal use of sea-water, it is generally best to employ them on alternate days.

ACUTE RHEUMATISM.

IN whatever form rheumatism presents itself to our notice, its origin may generally be traced to the influence of a variable temperature, or to that of cold, or moisture, or both combined, directly applied to the surface of the body; occasioning a great degree of pain in those inelastic textures which are more particularly connected with muscular motion.

This disease is often attended with high inflammatory action, and a greater or less degree of symptomatic fever, when it obtains the name of acute rheumatism, while on the contrary, in other cases, the latter symptoms being altogether absent, it is said to assume a chronic form.

By the ancients, rheumatism and gout were associated together under the term arthritis; and even so late as the time of Boerhaave, they were hardly considered as distinct diseases, so numerous are the points of analogy existing between them.

Acute rheumatism is a disease to which persons in the earlier and middle periods of life, are more especially liable; but although it rarely appears in youth, before the ninth or tenth year, cases are recorded, of children of four, five, and six years of age having been affected by it. It is most common in those whose skins are thin, and whose perspiration is most abundant, and is most easily excited.

The proximate cause of this complaint seems, as before observed, to consist in a peculiar kind of inflammation of the tendinous and ligamentous parts of joints, and of those inelastic tendinous expansions which cover the extremities of muscles; and particularly such of them as are nearest the surface.

This disease, however, sometimes attacks similar structures within the body, as those of the dia-

phragm, heart, and the most dense of the membranes which cover the brain; but it is fortunately one of the properties of rheumatic inflammation, to be very rarely productive of suppuration, although this is often threatened by its appearance.

It has been the opinion of many physicians, that rheumatic inflammation is situated in the fibres of the muscles themselves; there are, however, many causes for thinking otherwise; yet it often includes within its attack the contiguous portion of a nerve, as is so severely experienced in that very agonizing disease sciatica, and also in other cases, as when the hands are affected; but here, the nervous branches included, being of less size, a peculiarly painful tingling sensation is occasioned, with an impaired state of the sense of touch.

If we direct our attention more particularly to the influence of climate in the production of the acute forms of rheumatism, we immediately discover, that, perhaps, in no disorders, does it exert a greater degree of activity.

Hence a variable temperature is usually regarded as its great exciting cause, whether it be experienced partially or locally, or whether it acts,

as Dr. Scudamore observes, "through the medium of moisture, or of cold air alone, or more especially, both conjoined, operating upon the body wholly, or in part, according to the particular susceptibility of the patient."

Its predisposing cause is also of such a nature, as to render it most immediately influenced by the same agency; this being debility, howsoever induced, and whether general or partial; the powers of the system thus diminished, being rendered less capable of resisting the influence of exposure.

Acute rheumatism, like some other inflammatory diseases, is of more common occurrence during the autumnal, and the commencement of the winter months, than at any other period of the year. This circumstance, cannot be entirely assigned to the greater changes in atmospherical temperature, which occur at this particular season, but is, perhaps, chiefly to be attributed to the greater susceptibility which the constitution at this time has acquired, from the effects of the increased heat of the preceding months.

Sanctorius, who communicated at Venice his

valuable observations on the office of the exhalents, so early as 1614, in his "*Ars de Statica*," attributed the prevalence of these disorders at this season, to a similar cause; and remarks, that our exhalation, from the autumnal equinox to the winter solstice, is nearly a pound less daily, than during the hotter months of the summer. Such an observation however, is not applicable to the same extent, in reference to our climate.

But further, as the general prevalence of rheumatic affections is justly referable to the variable-ness and severity of season and of situation, those persons who inhabit places most exposed to the north, north-east, and east, are found to be by far the most liable to its attacks.

When, therefore, these circumstances are duly considered, it will be seen of how much importance to the rheumatic patient, situations of equal temperature become; and more particularly those which are screened from the influence of such an aspect; and which, at the same time, offer to him the safest and most efficient means of fortifying his frame against the recurrence of his disorder, by moderate exercise, and the use of the

salt-water bath, of a degree of temperature suited to his feelings, and the increase of power which the system acquires, in resisting the influence of cold.

The fact that rheumatic affections are not readily induced by water impregnated with saline matter, as that of the sea, or such emanations as arise from its surface, is fully established by the comparative rareness of these diseases among seamen ; for were it otherwise, they would of all persons become the most liable to suffer, from their constant exposure to sea-water, often united with that state of the body, arising from violent exertion, which renders it most susceptible to their attacks.

Even in latitudes where a humid sea atmosphere is generally united with extreme cold, as that to which those persons were subject, who were engaged in Captain Parry's voyages, we are informed that cases of rheumatism were extremely rare ; as they are also stated to be, by Mr. Edwards, amongst the aquatic Esquimaux.

The rheumatic patient has, consequently, much less to fear the effects arising from this species of

damp, than from those of any other; although prudence will dictate to him the impropriety of unnecessary exposure to a damp atmosphere of any kind.

This disease not unfrequently assumes a sub-acute form, approaching chronic rheumatism in its nature, when it becomes either confined to a particular situation, or leaves a great degree of tenderness in the parts before affected, which is liable to continue an indefinite period, and sometimes produces a very distressing affliction with great incapacity for motion.

The peculiar liability to relapse, however, in this very severe, though very seldom fatal disease, is generally its most unfortunate character, from the gradual exhaustion which the system experiences from the repetition of its attacks; its protracted influence also sometimes produces the most enervating effects on the strongest constitutions, and, in the more delicate, establishes a degree of feebleness and irritability, which greatly predisposes to the accession of other diseases in those organs more important to life

It is under these circumstances, more particu-

larly, that a judicious change of situation, and the adoption of those measures which are calculated to soothe, while they invigorate the system, are commonly attended with the most favourable results.

For in persons, who, by their long-suffering, have thus become enfeebled by this disease, the operation of those more active remedies, which were indicated in its preceding stages, are now rendered incompatible with the condition of the system.

Such means therefore can alone be had recourse to with safety and propriety, as are calculated by their mild influence to improve the general strength and powers of the constitution; as the various tonic, or alterative medicines, employed alone, or in combination with narcotics, as circumstances may demand.

In this capacity, we have certainly no external agent so efficient as the warm sea-bath; and especially when conjoined with the effects of pure air, and warm clothing, or of such other means as the peculiar case may require.

It is interesting to observe in this disease, that, even where the body has become chilled by cold,

with feelings of indisposition indicating the certain recurrence of an attack, it has often been prevented by the prompt employment of the warm-bath; the sudden stimulus thus afforded to the circulation, appearing to impart the power of resistance to the constitution, by producing an equal determination of blood to all parts of the external surface of the body, and thus breaking the energy of local excitement.

In acute rheumatism, the best effects attainable from the warm sea-water bath are, as in the former disease, derived from a temperature of from 90° to 96°, which is seldom found to accelerate the pulse; for it should be always remembered, that in inflammatory diseases this is injurious, and should be very carefully guarded against; unless the peculiar circumstances of the case demand that the heat be carried still higher, so as to produce perspiration.

In this way it is very possible to increase the action of the heart in a healthy person to 120 pulsations per minute, by the hot bath, under which circumstances, however, the perspiration becomes profuse, and the respiration laborious. It is an

interesting fact was, that after a bath, the pulse is usually affected by a temperature of 95° or 96°, though never below 94° and degrees than 97° or 98°.

But in the case of these therapeutic effects, as there is nothing which contributes more to their result than diminished bodily vigour, however induced, and a perspiration, when freely excited, becomes exhausting, it should here, as in most cases in which the warm-bath is employed, be carefully avoided, unless peculiar circumstances may require it.

When the body is immersed in a fluid, whose temperature is lower than, or only equal to, its own, although its animal heat may accumulate, an equalised circulation be established, and the best effects result, there is little or no tendency to an increase in the quantity of sensible perspiration; but when the heat of the body is below that of the surrounding medium, perspiration is excited; consequently, as the temperature of the human body rarely exceeds 97° or 98°, a bath heated even to 100°, becomes often, in these cases, far less beneficial than one below that temperature.

In the use of the warm-bath, therefore, it is desirable to be particularly careful in regulating its temperature by the thermometer, as a few degrees of heat make so important a difference in its effects.

It is, doubtless, owing to its tendency to check the waste of perspirable fluid, and, consequently, of animal heat, by the cold the former induces; that such soothing relief is afforded by it after fatigue, or when the strength is exhausted by violent exertion; whence, in the torrid zone, under such circumstances, a bath of from 90° to 95° is so commonly had recourse to, and so generally and highly esteemed.

There is also reason to doubt the popular idea of the very debilitating tendency of the warm-bath being well founded, unless when it is employed at so high a temperature as to raise the pulse beyond its accustomed frequency and strength; since the accounts mentioned by Baron de Tott, and other authors, of the number of hours which the inhabitants of some countries frequently spend in their warm-baths are so well authenticated.

In those cases, where it is desirable to induce sensible perspiration, by a degree of heat capable

of increasing the action of the heart and arteries, it is much more safe and useful to allow the temperature of the fluid to become gradually increased, while the body remains under its influence, than to have it at once heated to a high temperature. Thus it will be found most convenient to enter the bath at about 94° or 95° , and to increase the heat to 100° or more, according to the feelings and state of the patient.

If the temperature be at first too high, a febrile irritation may be induced, which is not readily allayed by the subsequent perspiration; indeed, a high temperature, when suddenly employed, does not appear to be so conducive to free perspiration, as when the body has been brought more gradually under its influence; whether or not this arise from a contraction of the mouths of the exhalents, is difficult to determine.*

* As the exhalents pierce the cuticle, and thus come into contact with the external air, they are liable to receive impressions from every external agent. This, however, according to the experiments of physiologists, does not appear to be the case with the mouths of the absorbents as they terminate beneath it.

Consequently, while the former are permitted to part

Even this gradual mode of raising the temperature to a high degree, requires the greatest caution, and may, I think, be often attended with considerable danger; yet I cannot avoid, in this place, digressing to repeat that the degree of heat which the human body has been found capable of sustaining, when gradually increased, or when, by frequent exposure, the system has become accustomed to its impressions, is truly astonishing; for it is thus, that the Finlanders are enabled to subject themselves during so long a time to the influence of steam, heated to 160° of Farenheit; and that in the south of France, girls are so frequently employed to arrange wood in ovens, previously to baking, heated to a temperature of from 160° to 180° .

Heated air, however, can, of course, be borne with far less inconvenience than heated water, as has been proved in this country by some experi-

freely with their contents, the latter are not enabled to absorb either water, air, or any other body, unless some abrasion or removal of the cuticle exist. By this provision, therefore, it appears that the constitution escapes the pernicious effects, to which it would otherwise be constantly liable, from the absorption of those deleterious agents to which it is so frequently exposed.

ments, which though well known, are too remarkable, in their results, to be passed over in silence. I allude to those of Sir Charles Blagden, Sir Joseph Banks, and others, on the powers of the body in resisting the effects of heat; in which experiments they subjected themselves to a temperature of from 240° to 260° , and without any precaution, or suffering any subsequent injury, walked out of this temperature into the cold air.*

* The most remarkable natural transitions which have ever been noticed to have taken place in this kingdom, or perhaps in any other, are mentioned in the Edinburgh Philosophical Journal for April, 1820; having been experienced in the preceeding January; and the same month afforded, it is thought, a greater degree of cold than has ever been observed in England, except in one instance. It occurred on Tuesday morning, the 18th, when the thermometer, in a northern aspect, at Perth, fell as low as -10° , or 42 degrees below the freezing point; and rose within the ensuing twenty-four hours 40° ; a transition as great as in passing, in this short interval, from the ordinary cold of winter, to the extreme heat of summer. On Saturday, the 22d, the temperature rose from 1° below zero, to 30° , between the hours of eight and eleven in the forenoon, a fact curiously illustrative of the variableness of our climate.

The still greater degree of cold, in the instance to which I

The body, under these circumstances, acquires an addition to its natural temperature, which, indeed, it does under the operation of the hot-bath, at the temperature of 100°, yet, what is especially worthy of our notice, this accession, when the greatest, does not exceed a very few degrees; and it appears to be this very addition of heat, which renders the transition from such extremes compatible with the safety of the health of the person exposed to them.

After this digression, it may be necessary to remark, that in these forms of rheumatic disease, although so much benefit is usually, and I may add, almost invariably derived from a combination of those remedies the coast affords, and which, in a former chapter, I have endeavoured to present to the notice of the reader; such affections, often require the greater or less co-operative influence of other means to ensure their removal; and particularly such as best tend to regulate the state of the bowels.

have just alluded, was observed in Glasgow by Dr. Wilson, in 1780, when the thermometer indicated 14° below zero.

Phil. Trans. 1780, p. 451.

With this view, mild and suitable aperients are often essentially necessary, and, in the absence of febrile symptoms, a restorative diet, tonic medicines, and exercises regulated by the circumstances of the case.

The various inconveniences, which the convalescent, in acute rheumatism, is so apt to experience in those parts of the body which have been most affected, arising from stiffness, debility, and aching of the limbs, are constantly found to derive material relief from frictions; and, where it is practicable, from calling the diminished energies into action by perseverance in a daily endeavour to walk an increasing distance, in a warm and sheltered situation.

But, as the indications of cure in the latter stages of this disease, often become precisely analogous to those of chronic rheumatism, for further observations on this subject, I beg to refer the reader to the succeeding chapter.

CHRONIC RHEUMATISM.

WHAT I have hitherto briefly said of curative means, in reference to rheumatic disease, relates to the latter stages of acute rheumatism, and is often no less applicable to the same stages of other inflammatory complaints; as are more especially those methods which have been noticed for removing the liability in the constitution to the recurrence of such painful disorders.

BUT if we direct our attention to the chronic, and more common form of rheumatism, when consisting of various painful affections of the joints and muscular system, unaccompanied with fever, we plainly perceive, that a sheltered coast, wheresoever it may exist, offers the most decided

advantages, from the commencement to the termination of the disorder.

The chronic form of rheumatism, although by no means uncommonly a disease of earlier life, belongs, more generally, to its advanced periods; making its appearance when those particular parts of the body which are most liable to its attack, have lost much of that irritability, or rather susceptibility to high inflammatory action, so peculiar to earlier years.

In this tedious complaint, the ligaments are thought to be less affected than the other tendinous parts of joints, which, probably, accounts for the entire absence of fever, and for the milder degree of constitutional derangement than is observed in acute rheumatism.

But, perhaps, with this exception, chronic rheumatism, like the acute, has its seat in all the soft and inelastic superficial structures of the body; and the causes, which predispose to, and excite it, are the same as those of acute rheumatism, being whatever tends to induce debility, and an increased irritability in the system, the chief of which is cold, in different ways applied to the body; while

the form of the disease depends, as in the former, on the particular tendency of the constitution of the individual.

But the cases of chronic rheumatism, which are induced by cold alone, are few in comparison with such as result from cold combined with moisture; for thus, as I have already had occasion to remark, the means of conducting away heat from the body are very materially increased.

If we consider, for a moment, the effects which are induced by cold on the human body, we perceive, that they are greatly varied; but that rheumatic disease is the first or most common derangement thus occasioned, from the diminished capability of resistance it imposes on the extreme vessels of the surface, and on the nervous system; and that in this disease, as in chilblains, these impressions of cold are succeeded by a re-action in the vessels of those parts most affected, which, in each disorder, is productive of its own peculiar kind of inflammatory action.

But if cold be more generally and powerfully applied to the surface, and, especially, through the medium of the air, its sedative influence is extended to the brain, and this effect is announced by the drow-

siness and disposition to sleep it induces, as has been so often experienced by our countrymen in cold latitudes. Navigators also inform us, that, with these effects, it not unfrequently occasions a sort of delirium, which, in some instances, has induced the belief that the persons who were thus influenced were in a state of intoxication.

While it is more generally known, that, if the action of cold be local, and be applied in a very severe form, its debilitating influence is such, as to permanently destroy all the powers of reaction in the part; and mortification is the consequence.

But although comparatively slight degrees of cold, when applied to the surface of the body, under certain conditions, are capable of producing very serious effects, there are others, as I have already remarked, under which its severity at 55° below zero may be resisted, by the wonderful heat-evolving energies of the system.

And here I cannot lose the opportunity of adding, that this extraordinary power of maintaining its own assigned degree of heat, and of resisting the effects of a higher, or of a lower temperature, constitutes one of the most admirable, and astonishing attributes of animal life; and its greater

or less degree of energy, may justly be considered in ourselves, as a criterion of the force of our vitality.

It would be difficult to adduce a more striking example of the preservative influence of this power in the system, than in the case of our countryman Captain Lyon; who, after traversing the scorching regions of the interior of Africa, within so short a period from that of his return, exposed himself with impunity to the cold experienced in a late northern expedition.

In ourselves, the power of resisting cold, although connected with several evident phenomena, as that of a greater determination of blood to those parts affected by it, and an increased action in their vessels, is, nevertheless, a faculty, the immediate operation of which is yet very little known to us: as is also the extent of the influence which the breathing function exerts by the decomposition, it occasions or that of the nervous system, by its electric-like properties, in the production or regulation of our temperature.

It is no less interesting to observe, that in man, and the higher classes of animals, this innate power

of maintaining a regular temperature, is by far the most perfect ; while it becomes weaker in the inferior gradations of animal life, in some measure proportioned to the natural diminution of their animal heat.*

The affinity before noticed which subsists between chronic rheumatism and gout, has often occasioned much ambiguity in the definition of these diseases ; and cannot be better illustrated, than by the fact, that the constitution is often under the influence of both these affections at the same time, producing what is called rheumatic gout ; though in such cases, it is supposed that each disorder occupies a different seat in the body.

Chronic rheumatism has been defined by Dr. Haygarth, to differ from gout, acute rheuma-

* To this, however, we find curious exceptions in those animals among the higher classes which hybernate, and become torpid during the cold months ; for, in some of these, as the dormouse, whose natural temperature is very high, and whose pulse is calculated at 150 or more per minute, the heat becomes, at these periods, almost reduced to that of the earth, and the action of the heart diminished to no more than ten or fifteen pulsations per minute.

tism and other diseases, by the absence of tumor; but such a definition, though formed by so eminent a physician, would lead to a very imperfect diagnosis, since we so often see chronic rheumatism occasioning enlargements of all those tendinous parts which it attacks, if they be superficially situated, as the fingers, hands, wrists, knees and feet; and such tumors are, not unfrequently, connected with a very impaired use of those joints contiguous to them.

These enlargements were, formerly, improperly described as a distinct disease, although merely the result of this particular kind of inflammatory action.

They are most frequently to be observed in females, or in those whose frames have been debilitated by over-exertion, or exposed to the influence of protracted or repeated rheumatic attacks.

One of the most common and severe forms of chronic rheumatism is that which affects the region of the loins, and from hence called lumbago. Although it is common to consider the muscular fibres themselves as participating in this affection, it is, nevertheless, probable, that the pain induced by

motion is chiefly occasioned by their action on the tendinous aponeuroses and ligamentous textures with which they are connected.

It will now be my object to offer to the invalid an enumeration of what appear to be some of the most important curative indications in chronic rheumatic disease.

When we regard the before-mentioned effects of cold and damp on the system generally, and their especial influence in the production of the disorder; the extreme susceptibility, in the individual so affected, of an aggravation in his symptoms from those atmospherical variations which so much prevail in this country; and that his complaint is one which is nurtured by every debilitating cause; it will become sufficiently evident that the advantages already noticed, derivable from a southern coast residence, are here of the utmost importance, a deduction which is fully warranted by experience. At the same time it becomes no less obvious that every means which is calculated to impart tone and vigour to the constitution increases the probability of success in the speedy removal of the complaint.

Chronic rheumatism being, at the same time, a disease subject to so much variety of character in connexion with that of the constitution, it demands, on this account, a greater degree of attention, and a mode of treatment varied according to the peculiar circumstances of each case.

Sea-bathing, however, in its various modifications, forms a remedy which I deem to be more highly beneficial, under the different stages of its progress, than any other; and, more especially, when combined with the other favourable *juvantia*, a pure and warm air, exercise, and suitable clothing.

Although I have already had occasion to say much concerning the external agency of sea-water, which may certainly be considered the most stimulating of any presented to our use, I cannot help again remarking in this place, that, although its immediate operation be confined to the surface, yet, by the increased action it induces in the exhalents, and the sympathetic influence it thus communicates to the system generally, it is doubtless salutary in proportion to its stimulating effects, in most cases where debility forms a prominent characteris-

It is the same. Vasa vasorum, if various considerations are taken into account, seem so important and useful a variety in these affections, the transmission may be said to have been rendered in the great majority of cases of the most frequent vascular diseases of this country and on the continent where the advantages dependent on its peculiar innervation are increased by the connection with which it has been so long employed.

Similar considerations having, however, at length become prevalent in Westman's, Broun's, Hastings, and other systems in our country, we are now better enabled to appreciate the relative merits of each.

The same system is very judiciously employed alternately with frictions, the latter, if desirable, being made in their action by stimulating liniments, in those worst forms of chronic rheumatism where the vessels and nerves of the part affected have lost much of their energy, and a kind of partial paralysis has been induced, the frictions having a tendency to assist the circulation, and to excite the action of the absorbent vessels in removing any effusion either within the cellular mem-

brane, or the sheaths of tendons; rigidity and torpor being, by these means, often capable of being overcome, while the natural actions of the parts are gradually restored.

With the increasing strength of the patient it frequently becomes very desirable to reduce the temperature of the water employed in the warm bath; and, where the balance of circulation, and a due degree of reaction excited by it, will permit, the use of the shower-bath, graduated down to the temperature of the sea, is constantly found to be extremely useful.

By increasing the quantity of water in the same proportion, the best effects are also usually experienced even in patients of the most delicate appearance, until sea-bathing may be regularly had recourse to, which I deem to be, in all cases of disease, most desirable, when it can be employed with safety.

It would appear too obvious to require to be mentioned, that the same means are equally efficient as preventives, were we not so much in the habit of overlooking the inconveniences attending these tedious and painful affections, as indeed those of

every other, except during the very periods in which we are actual sufferers from them.

But I am firmly persuaded, that, if any one means be more especially entitled to our confidence than another, in this prophylactic capacity, it is sea-bathing at its natural temperature; and that, were the rheumatic patient, during the intervals of his attacks, to take seasonable advantage of this agent, by thus fortifying the constitution against its morbid susceptibility to the effects of cold, he would escape many of those returns of his complaint, which often so long incapacitate him from pursuing his usual avocations.

In individuals liable to this disease, I have also generally observed the greatest possible advantage derived from the use of flannel next the skin; which, by maintaining a more equable temperature on the surface, and, consequently, a more regular action in the exhalent vessels, certainly renders the system less liable to suffer from atmospheric variations; and it is equally apparent that the same precaution should not be omitted in several of the other diseases in which southern coast advantages are most required.

I am well aware that, of late years, it has become the opinion of certain physicians, that the usual employment of flannel in this capacity, rather tends to increase than lessen the susceptibility of the constitution to the influence of external causes; and there can be no doubt, that it is often very injudiciously had recourse to, by persons little subject to derangement in their general health, and still less in the function of the exhalents. Such instances indeed are very common; and in them I think its utility may be often with great propriety questioned.

But these observations appear by no means applicable to the rheumatic patient, or to others before alluded to; in whom the benefit to be derived from this precaution, is founded on the experience of ages, and should not be relinquished, because partaking of the fate of other most useful means, in being subject to indiscreet application

There are several states of chronic rheumatism, in which very material benefit is derived from the employment of the vapour-bath; more particularly when the disease has induced a great degree of rigidity in the parts previously affected, accompanied

with those aching pains which are so characteristic of this disease.

In these cases, the temperature of the bath should be governed by the susceptibility in the constitution of the patient to perspire; as should also the extent to which it may be desirable to carry this process. Steam, it may be added, has also long been applied locally in chronic rheumatism, and with the greatest advantage in the relief of those deep-seated pains which often long continue to affect the larger joints.

It is by no means uncommon for chronic lumbago, more especially, where the lumbar nerves are affected, to be conjoined with sciatica.

This latter, is, as I have before observed, a most painful rheumatic inflammation of the sciatic or neighbouring nerves, and, like other rheumatic diseases, is subject to an acute and a chronic form; but it presents this remarkable difference—that, although the acute occasions great derangement to the whole system, it is unaccompanied with the inflammatory fever of acute rheumatism, the pulse being little increased in its frequency.

Sciatica has by some been erroneously considered

as a disease altogether distinct from rheumatism. It was well known to the ancients, and often described by them. By Hippocrates it was regarded as a species of gout, having its seat in the veins, the functions of the nerves not being then known; when, therefore, we consider that gout and rheumatism were at that period regarded as the same disorder, its association with arthritic complaints, becomes another illustration of the acute discernment of that great author.

Like the preceding diseases, sciatica is, too often, very tedious in its progress. Very frequently we may trace its existence to constitutional debility, when it is most successfully treated by those means which most conduce to the restoration of the general health; amongst which, sea air, warm sea-bathing, and, ultimately, the shower-bath, with tonic or other medicines, are as useful and important as in the former complaint, its curative indications being very similar.

In other cases assuming a more local character, it is most effectually relieved by various topical applications.

But as the general principles of cure, are so similar to those of the other forms of rheumatic inflammation, modified according to the constitutional or local peculiarities of the case, it will be unnecessary to add to what has been before said in reference to these affections.

GOUT.

THE history of this painful disease, connected as it is with the existence of many of the brightest ornaments of society, is productive of feelings of peculiar interest and regret, since the most valuable lives have so often been deprived of much enjoyment by its protracted martyrdom.

If we attentively examine the circumstances which predispose to this disorder, we may trace them to a certain state of debility, connected with a plethoric habit of body, and a more than ordinary degree of excitability in the nervous system ; while all those conditions which tend to excite the action of the heart and arteries, or to produce a

variety of forms, which may demand a very different method of treatment.

Experience has ever demonstrated that nothing exerts so powerful an influence in producing a liability to this complaint, as indulgence; and it is well known that too great indulgence of every kind, and under every circumstance, induces an enervating effect on the constitution.

It is, therefore, only by carefully maintaining an equilibrium between the support, and the degree of exhaustion, to which the animal powers are subjected, that perfect health can be sustained; the constitution of the animal machine in this respect being analagous to that of every other; since its action, if not regularly continued, is as liable to become impaired, as if it be, from any cause, exerted beyond the powers which it was intended to exercise.

The individual, who, in the midst of ease and quietude of body, perseveres in the use of means of excitement and of support, which would be more than adequate to the demands of the system under constant and arduous bodily exercise, destroys, by so doing, the equilibrium between in-

crement and exhaustion, and, hence, disease becomes nourished by superfluity.

Bodily exertion is indeed almost as necessary in maintaining the powers of the constitution as food, although its absence may not so speedily display its influence; since an impaired state of health may equally arise from a supply of nourishment more than adequate to our wants, and from a real deficiency in the necessities of life, in whatsoever way its effects become exhibited; whether in the production of corpulency or plethora, affections of the head, apoplexy, derangements of the stomach and digestive organs, or gout.

The latter disease, when it cannot be traced to an hereditary predisposition, is however rarely found in those persons who have not habitually combined the use of the more active stimulants, with a too nutritious diet.

Gout is, therefore, in an especial manner, a disease of the more wealthy, the sedentary, and the studious; hence the great Sydenham, who first published its history, endeavoured to console himself in his sufferings from this complaint, under

which he laboured during thirty-four years, from the consideration that kings, princes, and philosophers,—the greatest and wisest of mankind, had been equally subject to its attacks, and that the more intelligent were oftener its victims than others.

Depending on such causes, gout is, comparatively, seldom experienced by the hard-working husbandman, and by others whose occupations enjoin active bodily exertions, unless it be immediately derived from parents, or recent ancestry; and even when these have been well-known sufferers from this disorder, their successors who pursue laborious exercises usually escape its attacks.

Gout presents itself to our notice in a great variety of forms, which have obtained from various ancient and modern authors different names, referring to its peculiar character, or to the part affected.

The most important property of this disease, is its tendency to predispose by its first attacks, to their repetition; and although they not uncommonly become less severe after frequent returns,

they are often of longer continuance, and more varied in their situation, and, unless carefully guarded against, continue to recur at less and less distant periods, until they ultimately produce exhaustion of the animal powers.

But this kind of predisposition, it may be observed, is far from being confined to gout, as the paroxysms of many other diseases possess a similar tendency, resulting from no other evident change being induced by the primary attacks, than an increased degree of debility, or of local or constitutional inability to resist their accession, as I have before noticed in rheumatism, but which is seen more evidently in intermittent fevers, to which debility, howsoever induced, predisposes.

As, therefore, by the repetition of an attack of gout, this debility, or susceptibility to its return, is proportionately increased, so, by this increase of debility, are the attacks rendered more frequent.

It is, consequently, obvious, that, however improved the health of a patient may appear to be after an attack of gout, and however the popular paradox may be enforced, that gout is a healthy disease, the patient's health is only improved in

reference to its state, immediately before its accession, since each relapse is too apt to hasten the approach of its successor.

It is, moreover, very difficult to judge of constitutional vigour from external appearance, it being often farthest absent from the ruddy and the corpulent; though it is, doubtless, in consequence of such individuals being the frequent subjects of gout, that the prevailing idea originated, that paroxysms of this disorder are rather conducive to health than the contrary.

The best criterion of robust and perfect health is, assuredly, the ability which the individual possesses of maintaining bodily exertion; and however healthy the subject of gout may appear, he is, more or less, unfitted for this, by the very condition which imposes the disease.

The analogies which subsist between gout and rheumatism are so numerous, that, as before remarked, they were, by the ancients, often associated together under the same name.

But gout must be considered as differing from rheumatism, in being more particularly a disease of the constitution, requiring a certain state of the

system to receive the impressions of external causes, while rheumatism, on the contrary, is altogether dependent on the action of these impressions, and may be produced in any individual, by exposure to those causes which are calculated to excite it.

The inflammation accompanying gout, like that of rheumatism, is rarely productive of suppuration, although this is said sometimes to occur; but their affinity is still more close, in each inflammation being of a specific kind, and in these diseases only, being subject to that sudden translation, or metastasis, from one part of the body to another, which, in each, is often attended with results of so unfavourable a nature.

Gout, however, differs from rheumatism, in commonly confining its first attack to a particular part; it is usually announced by previous derangement in the state of the digestive organs, and of the nervous system, producing general indisposition; and it seldom occurs in females, or in very young persons.

Sometimes, nevertheless, it suddenly yields its seat to acute rheumatic inflammation, and *vice*

versâ, when it demands the greatest care in determining the nature of the disease.

The peculiar shining redness and swelling of the part affected, in acute gout, the pain being felt chiefly during the night, its periodical return, and the subsequent separation of the cuticle of the part affected, are other characteristic distinctions.

But although we are acquainted with those causes which predispose to, and excite the attacks of gout; of the nature of the proximate cause, or that peculiar local and constitutional change which takes place under this disease, producing its various phenomena, we are by no means certain.

The ideas which the ancients entertained on this subject, afford a curious illustration of their doctrine of the influence of particular humours.

Hippocrates attributed it to a corruption of the blood, bile, and phlegm; and it was long supposed to depend on a peculiar state of the blood, which was thought to have undergone chemical and other changes, productive of what was denominated an arthritic acrimony.

This acrimony was, by some, described as a morbid matter of a viscid nature, in consequence of

such a fluid being often effused around the ligamentous textures, by gouty inflammation. By others, it was supposed to depend on a preponderance of acidity in the system, which Berthollet conceived to be the phosphoric acid.

Dr. Cullen calls gout a disease of the whole system, in which the stomach is greatly concerned, and controverts the ancient opinion of the action of morbid matter.

He explains it, as arising in persons "having a vigorous and plethoric state of the system, and who are liable at a certain period, to a loss of tone in the extremities, which is, in some measure, communicated to the whole system, but more especially to the functions of the stomach, to restore which, an inflammatory affection of some part of the extremities is set up, and the patient returns to his ordinary state of health."

Dr. Scudamore, who is one of the latest and most valuable authors on the subject, attributes it to a "redundancy of blood with relation to the powers of the circulation, particularly affecting the vessels and functions of the liver, together with the production of a morbid change in the

secreted products of the alimentary canal in general, and of the kidneys in particular." Such, then, are a few of the many theories which have been advanced in regard to the immediate causes of this disorder.

Like many other diseases, gout is much more common in some situations than in others; which circumstance may be chiefly assigned to the difference in habits and manners of life, existing in each locality. It is much less common in Scotland than in England, and has been stated, by some authors, to be of more frequent occurrence in the cider countries of Herefordshire and Devonshire, than in other counties of England.

Its local prevalence has been also noticed on the continent, as Desault observes;* that it is far more frequently met with in Normandy, which is another cider country, than in Champagne; in Champagne than in Languedoc; and in Languedoc than in Aubusson; its prevalence being exactly proportioned to the acidity of the wine in ordinary use in each district. It is also, proportion-

* Clinique externe.

ately, much more often seen in large and populous towns than in the country.

The principal dangers to be apprehended in this disease, arise from its metastases or changes of situation, to which I have before adverted; thus, by attacking the brain, it gives rise to a very serious train of phenomena, varying in accordance with the peculiar circumstances of the case; by its removal to the lungs, inflammation, hæmoptysis, or extreme anxiety and a sensation of constriction across the chest, are induced; while in the stomach and digestive organs, which it more frequently invades, it produces other very dangerous and distressing symptoms.

From the constitutional nature of gout, and its immediate connexion with a certain impaired state of the general tone and vigour of the system, and of the stomach and digestive organs in particular; and from the powerful influence of some of those natural causes which conduce to the recurrence of its paroxysms, it must stand forward on the list of those diseases, which are most capable of being benefited by the means and circumstances to which I have already referred.

The effects arising from alternations of heat and cold, in producing its recurrence, have been particularly observed by almost every author who has written on this disease; and numerous instances have been adduced in illustration of their pernicious influence.

It is indeed, evidently, from this cause, that gout most frequently commences its attacks during the colder months, and when the individual affected is warm in bed; and that paroxysms of regular gout usually depart with the increasing temperature of the year, when such vicissitudes are less experienced.

The influence of cold or damp in its production, and in adding to the severity of its attacks, is, therefore, as important as in chronic rheumatism, whence Boerhaave was led to consider the north wind as the greatest enemy of patients subject to this disorder; while he regarded the south as the most effective in mitigating its symptoms; and this very accurate observer further asserts, that he never knew an attack of gout to take place in a patient in whom perspiration had not been previously checked.

The baneful effects of cold on this complaint, and especially that which accompanies north, and north-easterly winds, has been shown by Dr. Scudamore, in several very interesting cases; as also the salutary influence produced by changes in the wind, from these quarters, to the south, and south-west.

The entire removal of gout, can only be hoped to be effected, by avoiding, as far as it is possible, all those causes which tend to induce its attacks, and by means which are calculated to produce a change in the constitution; and as we have no remedy, from whose agency alone, the latter desirable object can be expected to be derived, the more perfect the combination of beneficial agents, the greater will be the probability of success.

That it is a disease capable of entire removal, we have the concurring testimony of ancient and modern experience,* and no less than three of our own most celebrated physicians, Drs. Cheyne, Cadogan, and Darwin, proved the truth of this observation in their own persons.

* *Articulorum vero vitia, ut podagræ chiragræque, si juvenes tentarunt neque callum induxerunt; solvi possunt.*

CELSUS.

When its paroxysms have been properly guarded against, or mitigated by the adoption of suitable means, we, not unfrequently, find this disease less serious in its results than the acute form of rheumatism ; and, under such circumstances, persons thus afflicted often attain a more advanced age than those who are subject to rheumatic attacks. But, where it is suffered to proceed in its course, by an inattention to the removal of those causes which induce it, and favour its return, this is rarely the case.

The most distressing form in which gout exhibits itself, is that arising from a powerful hereditary predisposition, as it then sometimes makes its first appearance during the early periods of youth, assuming an irregular form, and destroying, by the frequency of its recurrence, the powers of the constitution, before time has matured their development.

Although the more particular medical treatment of disease, as before observed, does not fall within the limits of the present publication, yet the general indications of cure may be inferred from the nature of the disorder. These, in gout will lead us to support and strengthen the powers

of the constitution by every internal and external means, and to avoid, as far as circumstances will allow, the employment of stimuli, whether in the form of solids, or of fluids, not so much in consequence of their primary influence, as the pernicious effects which ensue from their use.

The second indication in this disease consists in reducing, by cautious and judicious means, that plethoric state of the system which is almost an invariable attendant on the complaint, and which is so generally indicated by a distension and fulness of the vessels.

But I may here remark, that bleeding, in gout, by its too sudden operation on the system, is, in general, not well suited to this end, and cannot always be had recourse to with safety; those remedies alone being, generally, indicated in this capacity, which arrive at similar results by a more slow and gradual operation.

Aperient medicines, therefore, become highly beneficial, and particularly such as induce a gentle action on the more important secreting organs; but there are few diseases in which even the use of aperients require more caution; not less in

reference to the frequency with which they are employed, than to their selection; for, by having too constant recourse to them, an obstinate torpidity is, not unfrequently produced in the alimentary canal, which adds equally to the derangement of these organs, and of the constitution generally, and, consequently, favours, rather than averts, the recurrence of the paroxysms.

Antacids, tonics, diaphoretics, and narcotics, as circumstances may demand, are also often of the greatest utility in this disease; but I must return to the more particular consideration of such means as peculiarly belong to the coast.

Bathing is one of the most active of all auxiliaries in the removal of gouty affections, when adapted in its form to the particular state of the disease, or combined with a suitable constitutional regimen.

Numerous instances have occurred, in which the use of the limbs, when it had been lost by the influence of this disorder, has been restored by the diligent employment of the warm-bath, owing to the stimulating action which this remedy exerts on the absorbent vessels; and, if it be aided by fric-

tions, it becomes highly instrumental in diminishing and removing those chalky concretions, which, in persons who have been long subject to gout, are so frequently deposited around the joints.

Nor can the utility of warm bathing be rendered more obvious, than in those cases where the morbid action of the part, which has previously appeared in a regular form, is become feebly conducted, and is liable to change its situation, and to tend towards internal organs of more importance to life; with a view to avert which metastasis, and to induce the regular return of the disease in its usual seat, the waters of Bath, whose natural temperature ranges from 108° to 114°, have been so very long extensively and usefully employed, and, often, in combination with the internal use of aromatic and cordial remedies.

But the period in which the employment of the warm sea-water bath is of the most permanent advantage in this complaint, I conceive to be that in which the violence of an attack having subsided, the patient still labours under a train of *sequelæ*, often no less painful than tedious in their progress; at such times, when steadily and judiciously had

recourse to, it rarely happens that material benefit is not derived.

During a regular paroxysm of gout, and when any recession from its original seat is not to be apprehended, the warm-bath of any kind is, on the contrary, an unsuitable agent, and has, not unfrequently, been found to increase materially the subsequent inflammation. The object of the warm sea-water bath, employed between the paroxysms of gout, is, as in most other cases in which it is used, to aid in the fulfilment of the first indication in the cure of this disease; namely, to strengthen and invigorate the constitution; but, as a bath of a very high temperature would be liable to induce free perspiration, it must prove prejudicial, its debilitating effects counteracting its salutary operation.

But, independently of this disadvantage, the nervous irritability, which is so constant and characteristic an attendant on gout, renders a bath of a high temperature, equally inadmissible, the excitement it would occasion being no less injurious, tending as in the case of the

Bath waters, to the reproduction of the disease.

With the intention just named, it is rare, therefore, that a bath of more than 90 degrees of heat can be employed with advantage in this disorder ; and I fully concur with Dr. Scudamore, in his observation that much benefit would arise from the tepid plunging bath of sea-water, if such could be obtained ; as we have every reason to suppose, that, from the additional stimulus of the salt which it contains, such a bath would afford to the invalid still greater advantages than that of Buxton, whose temperature is only 82°, and whose efficacy appears to have arisen chiefly from this low temperature.

But it is obvious, that, in gout, as in every other disease, the heat of the bath should be regulated according to the state of the patient. Dr. Heberden appears to have been an advocate for the use of the sea-bath at its usual temperature, under certain conditions, in gout, and says, that he has seen many examples of the debility of limbs resulting from the disorder, increased by continued

bathing in the Bath waters: * this very acute observer, however, was well aware that extremes of cold, as of heat, are alike prejudicial in this disease. And as gout can by no means be considered a complaint connected with the existence of strong constitutional powers, cold sea-bathing should be cautiously resorted to, especially when the digestive organs are materially deranged.

The propriety indeed of cold sea-bathing, requires more careful consideration in gout, than in most other diseases, from the frequent tendency to plethora in the system; as from this circumstance, the circulation may, by the action of cold, be too powerfully determined internally; and, especially in persons advanced in life, if not productive of more serious consequences, it is liable to be followed by a deficient reaction, and by pains which resemble those of rheumatism.

Dry friction, or regularly sponging the parts

“ Quin artuum debilitatem balneo Bathonico auctam esse vidi; et multo præsentius fuisse remedium in mare descendere: quod multa me exempla docuerunt.”

Heberden. Med. Comment.

formerly affected with tepid or cold sea-water, are often found to be auxiliaries of very great utility in removing the susceptibility to a recurrence of this disease.

Exercise is of so much importance in its removal, as to have induced an eminent writer on this disease to observe, that, "if it be omitted, all the remedies that have hitherto been discovered will prove of no avail." The advantages derived from it may indeed be readily inferred, from any comparison we may make, between the numbers of those persons affected, who are actively employed, with such as pursue sedentary occupations.

So various are the modes by which this important antidote exerts its beneficial influence, that it would be tedious to enumerate them; I shall, however, briefly notice a few. By the stimulus it affords to the circulation, it increases the energies of the exhalents on the surface of the body, and, consequently, the volume of insensible perspiration; and, without expense of animal strength, if properly employed; it thus diminishes the mass of the circulating fluids.

By the sympathy existing between these exhalents and the stomach, an influence no less beneficial is communicated to this organ, tending to impart a healthful action to its function. The salutary operation of exercise on the alimentary canal also, in increasing and preserving its peristaltic motion, with the effects on the viscera derived from the action of the abdominal and other muscles as before shown, is of the highest utility.

Exercise not only prevents the formation of those concretions which are frequently deposited around the joints in gouty disorders, but it enables the absorbents more readily to remove such as may already exist. It tends also to preserve that motion in the limbs, which is too liable to become impaired or destroyed by contraction of the tendinous structures in this disease.

It is, moreover, an important means of correcting that acidity, which is almost an invariable attendant on derangement of the digestive organs, but more especially in gout, in which disease even the cuticular discharge is found by the chemical changes it produces on vegetable colours, to be

of an acid nature; this beneficial operation it probably effects by increasing, not only the action of the exhalents, but also the flow of bile into the alimentary canal, which bile may directly tend to neutralize the existing acid, by its alkaline properties.

To produce these useful effects, the exercise employed should be moderate, but it should be pursued with great perseverance during the absence of the paroxysm; no day being allowed to pass, without having recourse to it, when the weather and other circumstances will permit.

It cannot, however, be suddenly resumed after a long interval, without danger of incurring a return of the paroxysm; and as, when moderately and suitably conducted, it becomes the most effectual means of imparting strength, and of enabling the invalid to enjoy his repose, so, on the contrary, when violent, or too long continued, it is liable to induce debility and restlessness.

Where the state of the patient will permit, I believe walking to be the best kind of exercise that can possibly be employed in this disease, and

next to it in utility, riding on horseback, which latter was so very favourite a remedy with the great Sydenham.*

The necessity for a careful and equal attention to the nature of solid and fluid nutriment in gout, is obvious, from negligence in this particular being so constantly the source whence the disease originates; nor can all the benefits afforded by the aid of the best directed medicines, situation, or other advantages, effect that constitutional renovation, which is essential to its removal, without this regard to diet; in consequence of the influence it exerts on the stomach and digestive organs in particular, which in gouty affections sympathize so powerfully with the constitutional derangement.

The gouty individual, however, is far from being one on whom sudden and decisive changes

* "Et sane diu multumque mecum reputavi, quod si cui innotesceret medicamentum, quod et celare vellet, atque efficax in hoc morbo, ut et in chronicis plerisque, ac est equitatio constans et adsidua, opes ille exinde amplissimas facile adcumulare posset."

Sydenham de Podagra.

can be attempted with impunity; and it is only by cautious and very gradual means, and by a combination of every advantage in his favour, that a reasonable hope can be entertained of effecting so desirable a renewal.

I have already attempted to show, that a diet may alike prove productive of a pernicious influence, in whatever way it be disproportioned to the constitutional demand, whether, in a deficiency, or in a surplus quantity of the nourishment it contains; or whether it possess too stimulating, or too lowering a quality; and the effects originating from each source, will exhibit themselves in a debilitated frame, accompanied with that particular form of disease, to the production of which, experience proves each cause to be so adequate.

Gout, however, when it has once appeared, is fostered not only by the particular agency which first produced it, but also, in an almost equal degree, by those enfeebling causes which conduce to the formation and support of various other diseases dependent on diminished energy in the system; which fact is daily seen in the recurrence

of its attacks, from those which would never alone have called it into existence; amongst these, may be enumerated, exposure to cold or damp, violent exertion, mental anxiety, and not less than either, sudden changes from a high to a low diet.

Too spare a diet, therefore, where gout has frequently appeared, often becomes as conducive to its continuance, as one of an opposite character; and experience shows, that, in general, plain, simple, and easily digested food, proportioned to the wants, and accustomed habits of the patient, is, of all kinds, the best adapted to this disease; and it may be justly considered, that whatever is most calculated to restore the former vigour to the constitution, is, in the same degree, the most successful in removing, or diminishing the frequency of its paroxysms.

CONSUMPTION.

THE lamentable prevalence of consumptive diseases, in almost every kingdom within the temperate zones, has rendered their study of more importance to the physician, than that of any others; and has, consequently, led to more anxious and numerous endeavours to investigate their nature, and the circumstances which conduce to their production and removal.

In Great Britain this has been more particularly the case, as consumption exists more frequently in this country than elsewhere; although the proportion of those who are affected by this disorder, in some particular situations on the continent, as at Paris and Berlin, is scarcely less than with us.

In various parts in our own country, it is

also well known that material differences exist in the prevalence of consumption; and in some of our largest and most humid towns, it is by far the most frequently seen. From the account given by Dr. Beddoes, it would appear, that, in Bristol, the number of consumptive cases much exceeds what has been noticed elsewhere, it being there, nearly one-third greater than in London, and nearly one-half than in Shrewsbury; but, in the southern counties of England, according to Dr. Young, and others who have paid the greatest share of attention to this disease, it is of much less common occurrence than in the midland counties.

In the more northern regions of the world, except in some of the largest cities, consumption is comparatively little known, and still less between the tropics. It is of rare occurrence in the West Indies; and very uncommon on the northern boundaries of Africa, as well as in Lapland, Russia, and Denmark; and it seems to be scarcely ever seen in Persia, Bengal, Bombay, and Hindoostan generally. It appears therefore to be almost confined to the more temperate regions of the globe, and

to be immediately connected with the greater vicissitudes in climate to which they are subject.

The hereditary character of this disease has been acknowledged from the highest antiquity, and to this source chiefly, it has been common to assign its very obvious increase in modern times, but which is probably aided by many other causes of no less activity.

Consumption was also, formerly, generally acknowledged to be a contagious disorder, which opinion continues to prevail in many countries, although admitted by few in Great Britain.

It has, nevertheless, been long doubted, if external and fortuitous circumstances were not alone sufficient to produce this disease, independently of contagion, or of inheritance; and, from the numerous and important facts which have been at different times adduced in support of this opinion, we have every reason to consider the question as decided.

But although in consumption, as in many other complaints, the character of the predisposing causes are well known, and clearly demonstrable, this is far from being the case with regard to

those on which the disease more immediately depends; as, for example, the nature of that particular state of the constitution, which results from its hereditary predisposition.

On this subject, very different opinions have been entertained by those who have devoted the greatest attention to these complaints, some physicians supposing them to arise from a peculiar state of debility, and excitability in the lungs, rendering their vessels liable to assume an inflammatory action from trifling causes, which inflammation produces, in its train, those small bodies called tubercles; while others, on the contrary, have supposed, that, when these latter are present, they must have existed in the lungs, in a quiescent state, from birth; or have become gradually formed, independently of inflammation; and that inflammation has rather resulted from the irritation produced by their increasing size and numbers, than been the cause of their production; an opinion which derives great support from the many instances in which the lungs of infants have been thus affected.

The particular nature and progress of these

tubercles, has also afforded an ample subject for investigation, whence much information has been elicited, though, unfortunately, hitherto of more interest than practical utility.

Tubercles were supposed by Morgagni, Home,* and many other authors, to be diseased lymphatic glands, situated in the lungs; and by Hoffman, Willis, and others, their altered condition was thought to depend on a certain acrimony of the humours.

There are, however, important reasons for supposing these opinions to be incorrect; for, were the bodies in question diseased lymphatic glands, very severe cases would demonstrate the lungs to consist of little else than a congeries of such glands, which is known not to be the case in health. These bodies are also constantly found in parts of the lungs, where the former are never seen under other circumstances; and lymphatic

* "Phthisis pulmonalis, oritur obstructione sæpissime in glandulis per pulmonis substantiam disseminatis, vel arteriis bronchialibus: aliquando etiam in minutissimis arteriæ pulmonalis vasculis." *Home Princip. Med.*

glands are as often discovered in a healthy state in the vicinity of such bodies.

Tubercles are also destitute of that vascularity which surrounds lymphatic glands, and when they first appear, they have been long known to consist of minute watery cysts. Dr. Reid supposed them to originate in the diseased extremities of the exhalent vessels of the lungs, from an inspissation of their contents; while MM. Laennec and Andral regard them as the simple product of secretion; at first fluid, but afterwards solidifying, "*comme par une sorte de cristallisation*," from the absorption of their fluid particles, when most developed, presenting no trace of organization, and as being of accidental formation.

But Dr. Baron, who adduced an accumulation of facts, supported by inferences drawn from analogy, considers these small watery cysts to be hydatids, more or less numerous, according to the particular constitution, or the greater or less prevalence of those circumstances which give them origin, and favour their growth; and that chiefly from accidental irritating causes, they increase in size, be-

come ruptured, and proceed to the production of all the phenomena of confirmed consumption.

The bodies which I have last mentioned are, not unfrequently, found in almost every other organ, and they produce different effects according to their situation; it is also a very important circumstance, ascertained by experiments on the young of inferior animals, that not only is the progress of similar bodies materially favoured, but their production occasioned, by innutritious food, and by the combined influence of other debilitating causes.

Dr. Jenner furnished examples of this kind in rabbits, in which there was previously no reason whatever for suspecting their presence; and by their examination at different periods, he was fully enabled to trace, in them, all those phenomena which characterize tubercles in cases of true pulmonary consumption.

As, therefore, such bodies in inferior animals, are so closely analogous with those of our pulmonary diseases, it greatly favours the reasonable opinion which previously prevailed, that similar

causes may produce corresponding effects in ourselves ; and that debilitating circumstances, whether arising from the nature of our food, our climate, or more particularly both combined, may not only call into action, a latent and quiescent consumption, but may lay the very foundation of this disease.

That the atmosphere, especially if it be liable to frequent changes, has great power in establishing consumption, may be demonstrated, from the circumstance of this complaint confining itself almost exclusively to those latitudes, which are most subject to vicissitudes of climate ; and from its being so comparatively rare in Russia, and in the tropics, whose temperatures, whether low or high, are so much more steady than with us.

The baneful influence of a varied temperature as it exists in different situations of our own country, has been very accurately shown by Dr. Woollcombe, and exhibited by a comparison of the numbers of deaths from this disease in each month, as expressed in the following table, the average of thirty years ; during which period, February proved the most trying in these disorders.

February	1137	November	1002
March	1102	October	969
January	1100	September	963
April	1081	June	914
December	1021	August	877
May	1006	July	827

It has been before noticed, that consumption is far from being a rare disease in many other countries on the continent; yet we have no reason for supposing that in any, its ravages are increasing in the same alarming proportion as in Great Britain; and when we consider the various circumstances which predispose to this complaint, to some of which I have already briefly adverted, the melancholy fact ceases to greatly excite our surprise.

Among the numerous causes in constant operation, which tend to produce this result, as it has been justly observed by Mr. Williams, * our forefathers were very much less exposed to vicissitudes and changes in temperature than we are, as their time was in a great measure spent in the open air, in their different out-of-door occupations. Their houses, also, were far less perfectly constructed for

* Williams on the Climate of England.

shutting out the external air than those of the present day ; their rooms were spacious, and their doors and windows very imperfectly closed ; while carpets and other analogous luxuries were comparatively unknown.

The modes also which they adopted for heating their apartments, were very different from ours ; as, instead of stoves, and other ingenious contrivances now had recourse to, they used large fires of wood ; and their chief means of shelter from the powerful currents of air such fires occasioned, was derived from the wooden screens so commonly in use.

Independently of other causes, similar circumstances, even in the present day, may tend to render consumption less common, as it doubtless is, amongst the occupants of our old English farm-houses, than amongst the residents of towns, and more closely constructed habitations.

But the attire also of our ancestors, was chiefly formed of those materials which were best calculated to exclude the effects of cold and damp ; that of the females principally consisting of wool-

lens, worsted stuffs, and quilted or brocaded silks; a difference so totally opposed to the light and thin draperies of modern times. Nor was the clothing of the male part of the community of former years less adapted to the same end. On this subject, Dr. Southey observes, that "in many parts of Scotland, where consumption is now prevalent, the old people affirm, that it was unknown before the warm Scottish plaiding was exchanged for the thin and fine cold English cloth, and woollen for cotton."

But there are many other circumstances now in operation, which, from what is known of the causes of this disease, must naturally tend to render it more frequent. Formerly a much greater degree of simplicity prevailed in the habits of life of the people; their hours of exercise, among all classes, were more regulated by the light of the sun; they were consequently far less exposed to the effects of night air, and thus, in a great measure, they escaped those sudden variations in temperature, which are at present experienced, and which not unfrequently amount to from 20° to 30° within twenty-four hours.

The further powerful tendency to similar results arising from the material increase of sedentary employments, of unwholesome occupations, and of crowded manufactories, is too obvious to require any remark ; but there is one more natural cause, which I cannot avoid noticing, as it may probably have tended in an especial manner towards the increased prevalence of pulmonic diseases in our own country.

I allude to the change which our climate itself appears to have undergone, by having become, as we have every reason to believe, more humid than formerly, and the temperature of our summer months diminished, as is obvious from all the earlier writings.

In illustration of this circumstance, William of Malmesbury, who has been more particular in his information than many other historians, remarks, in his book "*De Pontificibus*," that the vale of Gloucester used to produce in the 12th century, as good wine as many of the provinces of France ; and indeed it is well known, that in the counties of Worcester, Hereford, Somerset, Cambridge, and Essex, there are lands which still

bear the name of vineyards ; many of them having been attached to particular church establishments, whose ruins are yet in their vicinity.

In regard to the vale of Gloucester, he observes, "it obtains its name from its chief city ; its soil yields a great variety of fruits and plants, and every species of grain ; in some places, by its natural richness, and in others, by the diligence of the husbandman ; enough indeed to excite the idlest person to take pains, when it repays his industry with the increase of a hundred fold. Here," he continues, "you may behold the highways and public roads abounding in fruit-trees, which are not set, but grow spontaneously ; the earth of its own accord bearing fruit, which exceeds other kinds both in taste and beauty. Many kinds also continue fresh the whole year round, and serve the owner until he is supplied by a new increase. There is no province," he adds "in England, which has so many, or so good vineyards as this country, neither on account of their fertility, or the sweetness of the grape ; the wine having no unpleasant acidity, and not being much inferior to the French in its sweetness."

Vineyards are also mentioned in this country so early as the beginning of the eighth century ; and after the conquest, the Bishop of Ely used to receive three or four tons of wine annually, as tithes for the produce of his diocese ; and it appears that the land which now forms East Smithfield and the adjoining streets, was cultivated in the reigns of Rufus, Henry, and Stephen, as a vineyard, by the successive constables of the Tower, to their great emolument.

Within the last century, many attempts have been made to bring the vine again to maturity in this country, for the same purpose ; but, except under peculiarly favourable circumstances, as against walls having a southern aspect, they have been, I believe, uniformly unsuccessful, which is a too convincing proof of the unfavourable change our climate has undergone.

The exciting causes of consumption, or those circumstances which are calculated to impart an effective influence to a predisposition already existing in the constitution, are too varied and numerous to admit of being specified ; but among them I may notice as most important, the confined,

stimulating, or otherwise altered atmosphere of large, populous, or manufacturing towns; exposure to the injurious effects of fogs, or to the penetrating influence of northern winds, with sudden transitions from heat to cold.

Previous disease, whether of a local or constitutional character, often excites consumption, particularly eruptive disorders, and affections of the liver and alimentary canal; as do indeed all those causes, which either tend to debilitate the constitution, excite the circulation through the lungs, or in any way render respiration more difficult.

Of the influence of cold and debility, in the production of consumption, Dr. Trotter has furnished us with an example too important to be omitted. He informs us, that the seamen on board the channel fleet, in the year 1800, having been for some time under very severe duty, in blockading the port of Brest, were subjected to great perspirations, and frequent exposure to strong currents of air setting in upon them through the port-holes, and that, in order to prevent the accession of scurvy, they were served daily, for many months, with lemon-juice and sugar; but

by these combined means, their digestive and other powers became so materially impaired, that several hundred cases of consumption arose among them, as the result. *

Consumption occasionally originates from sources altogether independent of the previous existence of tubercles; this appears to have been the case in the instance just referred to, as also when it is the consequence of local injury, or of disease in the lungs; or when it results from the rupture of a blood-vessel, or from any other accidental cause, although instances of this kind are of comparatively rare occurrence.

The first stage into which true tubercular phthisis has been divided, is marked by symptoms indicating the insidious approach of inflammatory action; as a general feeling of weakness, and inability to pursue accustomed exercises without fatigue and inconvenience. Very frequently no complaint is made of decided pain, but a transient pricking sensation is usually experienced on deep inspiration, generally beneath, or near the sternum;

* "*Medicina Nautica*."

the respiration is therefore rendered less free than it was previously, and it becomes very gradually more frequent and difficult ; but this is most particularly observable on ascending stairs or other elevations.

The individual thus affected, is, occasionally, troubled with a short, catching, cough, which is often very little regarded ; his pulse, at first, experiences no evident change, except after a meal, when it is almost invariably found to be more quick than natural, and his countenance at this period becomes flushed, and frequently exhibits a circumscribed redness on the cheeks.

He complains also of alternations of heat and chilliness ; his skin is commonly dry ; a sensation of unusual warmth is sometimes felt in the palms of the hands and soles of the feet ; the tongue is often particularly bright in colour at its edges, but is at first almost free from any other usual febrile indication.

These symptoms, accompanied with a greater or less number of others, equally, or still more unequivocally characterizing an incipient attack, continue for some time, and are ultimately succeeded by such as with certainty announce the presence of

inflammation ; and which, exhibiting characters yet more distressing, continue to prevail throughout the latter progress of the disease ; most commonly, exciting far greater anxiety in the minds of relatives and friends, than in that of the individual himself.

Although, in the far advanced stages of consumption, it is well known that there is little probability of removing the disease by a change of situation, and that such a measure can only be undertaken with a view to ameliorate the urgency of existing symptoms ; yet, as consumption, is a disease so immediately affected by external causes, and as some situations present so much more favourable a combination of these than others, it is consolatory to reflect, that in the earlier stage of the disorder the prospect is far less gloomy ; since instances are by no means unfrequent, in which by the timely adoption of a change of this kind, the influence of the complaint is removed, and its consequences permanently averted.

This satisfactory consideration also, is not only theoretically shown by patients regaining their health after having exhibited the somewhat equi-

vocal characters of incipient consumption, but is corroborated and proved by the fact, that, after an attack, tubercles frequently remain in the lungs, throughout a long life, in a vesicular and quiescent state, and even although transformed into solid bodies, without becoming productive of further inconvenience.

Examples of the kind have occurred to the observation of almost every physician who has paid particular attention to this disease, since the days of Hippocrates; and although many extraordinary cures have been recorded, which have not been sufficiently authenticated, there are numerous others, which have been proved by subsequent examination; and tubercles are, further, very frequently found in the lungs of persons, who, during their lives, were never known to suffer from their presence.

After a due consideration of the causes of this complaint, and of the several natural advantages to which I have already adverted, in reference to the various more sheltered situations along our southern coast, the reader may perhaps concur with me in the decided opinion, that we are not in

possession of any others in this country, which offer to the consumptive invalid prospects of advantage, arising from so many sources.

Such superior benefits obviously depend on the more perfect opportunities afforded by these situations, of avoiding those causes which are known to be the most injurious; and they are consequently most efficient in averting the accession of inflammatory symptoms, against which the most anxious and persevering efforts should be directed.

In this capacity, as also in that of subduing such symptoms where they may already exist, we have, indubitably no external agent of so much importance, as a warm and equable temperature; which fact is demonstrated by general experience, and may be inferred not only from the character of the disease, but also from the preceding table of Dr. Woollcombe, on the influence which, in this country, the different months exert on the disorder; and it would indeed be difficult to conceive the possibility of removing a tendency or predisposition to such a complaints, under exposure, either to much cold and damp, or to sudden vicissitudes of heat and cold; but more especially to the latter.

The benefits, on the contrary, arising from a regular and elevated temperature, are no less satisfactorily shown, in the intermission of urgent symptoms, and the improvement which often takes place in the health of consumptive invalids, during the warmer and more agreeable months of the year.

By the maintenance of a due and steady degree of warmth on the surface of the body, the energy of the functions of the skin is supported; while by the effects of cold, the extreme vessels become constricted, the circulation is thrown out of equilibrium, the secretions of the skin are suppressed, and the vessels of the affected internal organs are proportionately distended; all which pernicious results are augmented in the same degree, as the liability to vicissitude in temperature is increased.

It was formerly the prevailing opinion, * that

* "*Animadvertendum est, effluvia ista, quæ a sanguinis massâ per insensilem transpirationem ablegari solent, a frigore cutis spiracula subito contrahente intròverti, et in pulmones deponi, quos irritando tussim mox excitant.*"

Sydenham.

cold, whilst it arrested the action of the exhalents on the surface of the body, determined their secretions internally upon the lungs; but without the necessity for acquiescing in this supposition, it is easy to conceive the injury the latter sustain from the general consequences just noticed.

But, independently of the influence which cold so uniformly exerts, on the arterial system generally, and on the vessels of the lungs in particular, from their more delicate structure, and greater susceptibility to derangement and inflammatory action, from external causes; by its debilitating effects when combined with humidity, it is rendered, though in a less evident manner, more especially injurious in consumptive habits.

In very few parts of Great Britain have we, unfortunately, opportunities of combining the advantages of exercise in a pure atmosphere, with those of a more equable and elevated temperature, during the colder part of the year; and there can be no doubt, that the beneficial results arising from artificial warmth, as employed by Dr. Beddoes, Dr. Kentish, and others, in these disorders, would be

rendered still more apparent, could exercise and constant change of air, so essential to the removal of most chronic diseases, be more extensively combined.

Such a combination is indeed the great *desideratum* in consumption, and it is the difficulty of obtaining it at home, which has furnished the inducement, to recommend to patients predisposed to this disease, a residence in countries and kingdoms, whose climate is more congenial than ours; and where a measure of this kind can be adopted early, and with comfort to the individual, it is, I think, unquestionably the most advantageous of any that can be had recourse to.

But when we consider the insidious nature of consumption, and the progress which the disease has usually attained before a decision has been formed in reference to a removal to a foreign clime, often arising from the very material inconveniences which attend it, we, unfortunately, discover far too few cases among those who are leaving home, in which there is a sufficient probability of benefit, to compensate for its several disadvantages; not because consumption is originally incurable, but

from the neglect which too frequently attends its progress at those periods, when, by the adoption of suitable means, its influence might have been overcome ; for, as Dr. Beddoes has very justly remarked on this subject, though a common cold, if properly managed, usually departs in less than eight or ten days, if, when it continues beyond this period, a judicious method of treatment were had recourse to, thousands might be rescued from an untimely grave. How often, however, are weeks and months thus passed over, before either the patient himself, or his friends, are awakened to the danger which may result from so apparently trifling an exciting cause.

When, therefore consumption has unequivocally proceeded to its more advanced stages, constant and sad experience has proved, that the removal of invalids to distant parts of Europe, whether by sea or land, is attended with far more numerous disadvantages, than benefits. And independently of state of exhaustion to which the patient is necessarily subjected, by the great exertions which such a measure generally demands, to recommend the transport of an individual so circumstanced, from all he

most esteems at home, to a country, and amongst persons, whose manners, habits, and modes of thinking, are alike strange to him, and where he is deprived of those soothing consolations and comforts which can only be afforded by the society and kind offices of his nearest and dearest friends, is no less cruel, than injudicious.

I shall now proceed to the more particular consideration of a residence on the coast in these most important diseases.

Low situations having been found least obnoxious to consumptive complaints, and, on the contrary, a diminished atmospheric pressure, whether depending on meteorological variations, or on a removal from a lower part of the kingdom to one of a higher level, being thought to be prejudicial in such cases, many medical authors have supposed the advantages of the coast, to be materially aided by the increased weight of its atmosphere.

It has, indeed, not only been observed, that the proportion of these diseases materially increases as we ascend from a lower to a higher elevation, but cases are recorded in which their progress

has been effectually arrested by a removal thence to a lower level.*

That such results, however, are dependent entirely on the degree of pressure to which the lungs are subject, is not clearly demonstrated ; since the pernicious influence communicated, on high elevations, to pulmonic disease, may arise, in a more especial manner, from the greater vicissitudes of heat and cold to which such situations are exposed ; although I conceive that there is evidence amply sufficient for believing, that the greater or less degree of pressure in the atmosphere, is productive of very important effects on organs so immediately exposed to its action, and rendered by de-

* A remarkable instance of the acknowledged advantages of a low situation, has been given by Mr. Leslie, in a letter quoted by Dr. Beddoes. He states, that in an academy and convent, situated on a high hill at Liège, consumption was so exceedingly prevalent, that it frequently became necessary to send the young men into the lower parts of the country, as to Bruges, Ghent, and Antwerp, for the purpose of recovery ; and that, ultimately, the convent was removed in consequence, to a lower part of the town.

rangement or disease, preternaturally sensible to its effects.

This would appear more particularly apparent from the observations of Mr. Mansford, on the degree of acceleration which the pulse acquires even at a comparatively trifling elevation; for, on ascending no more than 500 feet above the level of the sea, it seems that the heart gains an accession of several pulsations per minute; while the resistance of the vessels is diminished in an equal proportion, as is demonstrated by the well known circumstance, that even the most healthy persons, on ascending great heights, not unfrequently experience a rupture of small vessels, which are distributed on the membranes most exposed to these influences; it is therefore easy to conceive, that injurious consequences may result from slight elevations, to invalids, the delicate vessels of whose lungs have either suffered partial disorganization, or have acquired an increased degree of susceptibility to disease.

This increased rapidity in the circulation, and in respiration, is, nevertheless, by no means pro-

portioned exclusively to the degree of elevation to which the individual is exposed, but is not less affected by constitutional peculiarities; hence evidently the cause, why so much discrepancy exists between the accounts given by authors, of the sensations they have experienced at different altitudes.

Thus, although M. Saussure informs us, that on ascending Mont Blanc, he suffered from these effects in a very high degree, that his strength became exhausted, and that various febrile symptoms evinced themselves; and although Sir W. Hamilton felt great difficulty in his respiration on Mount Etna, and many have been attacked by hæmoptysis and other hæmorrhages, under similar circumstances; Dr. Heberden did not complain of any very material inconvenience from visiting the Peak of Teneriffe, and the same may be observed of several others, who have reached the heights of Mont Blanc and parts of the Andes; and even of those who have experienced the rapid ascent of balloons.

But, notwithstanding these facts, when we consider, that in low situations, and with the barometer at thirty inches, we sustain an atmospheric

pressure of fifteen pounds upon every square-inch, or thirty-two thousand pounds weight on the whole surface of the body, elevations, great or small, as well as changes in the state of the atmosphere, by each of which, this external pressure is often suddenly diminished several thousand pounds, necessarily exert a powerful influence on the delicate structure, and functions of the lungs, when the health of these organs is in any way deranged.

From various experiments, which have been at different times undertaken, with a view to determine the effects produced by a light, and a heavy atmosphere on the function of respiration, we learn, that, although animals become subject to such serious inconvenience from the partial exhaustion of the air, within the receiver of an air-pump; on the contrary, by the condensing machine, they sustain a degree of pressure equivalent to the weight of three or four atmospheres, without apparent injury; and that, after an animal has been subjected to this extreme pressure, it seems to experience the most uneasiness in returning to that of its accustomed medium.

In the first instance, there can be little doubt

that the inconvenience does not depend more on the primary abstraction of the air, and the scanty supply of oxygen which so rare a medium can afford, than on the suffocating effects produced by the distension of the blood-vessels lining the minute air-cells of the lungs, by which the latter become diminished in their capacity; the absolute volume of air received, being small, in proportion as it is rarefied.

In proportion also to the existing weight of the atmosphere, is the quantity of oxygen, which passes into the lungs, and there appropriated to the important end it is destined to fulfil in the animal economy; and the necessity for a quick succession of inspirations is diminished in the same ratio; while, on the contrary, respiration acquires equally an increased rapidity on high hills, and in air deteriorated by frequent inhalation.

Dr. Wells took unusual pains to ascertain the influence of situation on consumption, and he has adduced many examples in corroboration of the comparative rareness of the disease under a heavy atmosphere. He remarks, that he was led to undertake this enquiry, from having heard, so long

back as the year 1779, that it was common in Flanders to remove the consumptive to the low and marshy parts of the country for their benefit. Mr. Mansford has also collected numerous instances of the greater prevalence of consumption in high, than in low situations, and Drs. Darwin, Cullen, Beddoes, and others, have consequently advised the removal of invalids liable to this disease, from the higher to lower parts of the country; and this practice is more or less common in most kingdoms where the disorder prevails.

At Aix la Chapelle, consumptions are said to be very rare, while at Monjoye, a mountainous country, only twenty-eight miles distant, this disease carries off a large proportion of the inhabitants. It is also said that the hill of Montmorency, near Paris, which is dry, sandy, and much exposed, is very productive of consumptive disorders, and that those who visit it, with any predisposition to these complaints, almost invariably derive unfavourable effects from the change; and the same remark applies, with no less certainty, to many of the hilly parts of our own country.

The inhabitants also of the mountainous parts

of Portugal and Italy, are very subject to consumption, while those of Finland, Denmark, and Holland, are much less liable to its attacks.

There is, consequently, amply sufficient reason for supposing, that it is partly from causes of this kind, connected with a greater degree of exposure, that this disease has been found to be less common in low situations than in any other. This circumstance has given rise to the idea that consumption and intermittent fevers, cannot exist to a great extent in the same district; which latter opinion is, nevertheless, erroneous, as they are not only found in the same situation, but even in the same individual.

Although, therefore, there is no sufficient reason for making choice of those more marshy districts which have been selected, on the continent especially, for consumptive patients, notwithstanding their tendency to produce intermittent fevers, we ought not to disregard the benefits arising from an increased weight of the atmosphere, in those situations where the latter disease need not be encountered.

From very early periods, sea-air, sailing, and the sickness which is induced by it, have each been

powerfully advocated as remedies in pulmonary consumption by physicians of the highest celebrity; and lengthened voyages have been therefore commonly advised by them, these being considered to rank among the most efficient means that could be employed in aid of their endeavours to remove the complaint.

Amongst the Romans,* it seems to have been a prevailing custom to recommend a voyage from Italy to Alexandria; and it appears, from the observations of Pliny, who himself also extolled its utility in this disease, as also in that of hæmoptysis, that it was undertaken more on account of the benefit supposed to be derived from the voyage itself, than of the advantages afforded by the Alexandrian coast.†

The efficacy of sailing was formerly thought to

* Ideoque aptissime Alexandriam ex Italia itur.

Celsus, lib. iii.

† “Præterea est alius usus multiplex, principalis vero navigandi phthisi affectis, aut sanguinem egerentibus; sicut proxime Annæum Gallionem fecisse post Consulatum meminimus. Neque enim Ægyptus propter se petitur, sed propter longinquitatem navigandi.”

Pliny, lib. xxxiv.

more from the sickness it excited, than peculiar properties of sea-air; * and these or combined effects have been no less esteemed by many of the most distinguished modern authors; as Boerhaave, Mead, Cullen, Fothergill, Heberden, and many

the utility, therefore, of voyages, being recorded by such high authorities, and deduced from experience extended from antiquity to the present, we cannot doubt the benefits which they have at all periods occasionally imparted; and during predisposition to consumption, before symptoms arising from active inflammation have evinced themselves, the greatest advantage may often be derived from such a measure, more particularly, if the removal be into a climate which is milder and more equable than our own.

What has been said, however, in another place,

* "Gestationes vero et in navi per mare, quod aer saluberrimus, auctore Aretæo, plurimum valeat ad ulcera siccanda."
Prosper Alpimus.

in reference to extended removals of any kind, is peculiarly applicable to long voyages; as there is too much reason to believe, that from the causes, before-mentioned, the high expectations which have arisen from their recommendation, have been followed by very frequent disappointment; and the experience of all those who have had the greatest opportunities of witnessing their effects, will, I think, induce them to feel and acknowledge the truth of the following observations of Dr. Duncan, in his valuable work on consumption. "After the disease is so far advanced as to be distinctly marked, I have never, for my own part, known any benefit derived from a sea voyage; while, on the other hand, phthisical patients in a very debilitated state, at sea, in stormy weather, are subjected to so many, and so great inconveniences, that I have often known those who have attended such patients, deeply regret that the practice had been tried."

Drs. Gilchrist, T. Reid, and some others, who have adduced examples of cures effected by long voyages, have considered these favourable results

as, in a great measure, derived from the sickness such patients have experienced; but from the very numerous other instances, in which the effects of sickness have been fairly tried in the earlier stages of these complaints, without any apparent advantage, there is much reason for doubting the curative influence of this remedy.

It is, at the same time, of so powerful a nature, that where evident proofs of its advantages are not discoverable, it can scarcely fail to produce a contrary result; since sea-sickness, as Dr. T. Reid, one of the greatest advocates for its agency, admits, "is of all sickness the most violent and distressing; often straining the patient till pure bile is pumped into the stomach, and is even more powerful in its effects than that which is produced by the operation of any emetic medicine."

But independently of the fact, that the advantages derived from the influence of the sea, are not proved, by the experience of the present day, to be fairly attributed to this cause, and although an occasional emetic be found of great utility in this disease, it becomes, I think, very difficult to


explain, satisfactorily, on what principle so violent an operation, as that occasioned by sea-sickness, can be expected to prove more beneficial, in a constitution naturally weak, and still further debilitated by disease, than such as may be induced by far less powerful means; whose effects, instead of continuing several days, and sometimes even weeks, in succession, as occurs in extensive voyages, may be regulated according to the particular circumstances of the case.

It may be repeated, also, that, in the more advanced periods of pulmonary consumption, general experience has proved, that the benefits derivable from a long voyage can bear no adequate proportion to the inconveniences which usually attend it.

I shall now mention those circumstances which, in my opinion, tend more immediately to render the influence of the sea beneficial to consumptive invalids; the more general properties however of a sea atmosphere, have been already noticed, its purity and salubrity having been uniformly admitted, from the most early periods.

Dr. T. Reid, in treating on consumption, has remarked of sea-air, that "when agitated by moderate winds, in a temperate southern climate, it is the purest that can be found on the face of the globe;" and he adds, "I believe it will be allowed, that health may be enjoyed better at sea than on any part on shore;" as a proof of which, he adduces the fact, that "Captain Cook, with a hundred and eighteen men, performed a voyage of three years and eighteen days, through all the climates in the world, with the loss of only a single man; whereas it is computed that in Madeira, one individual dies annually out of every fifty; in the Pays de Vaud, one in forty-five; while in England, one dies in no more than twenty-five; so that in Madeira, he might expect to have lost seven men in three years; in the Pays de Vaud, rather more; and in England, not less than fourteen."

As the healthful tendency of sea-air is so constantly exhibited, no less in the restorative effects which it exerts in disease, than in the robust constitutional powers it imparts to those who are most exposed to its agency, we have every reason to acquiesce in the general accuracy of these remarks;



although the comparison drawn is liable to objection, since the persons employed in such an expedition, would be chosen from among the most healthy.

But although the genial properties of a sea atmosphere to constitutions generally, is, I believe, fully acknowledged ; it has been lately doubted, by certain physicians, if it be as well adapted for consumptive habits ; and this being an enquiry of so much importance in reference to a residence on the coast, in these cases, demands further notice.

That a sea atmosphere is less conducive to the production of consumption, than any other, may, I think, be inferred, from many of those kingdoms which are most exposed to it, being the least subject to the disease, as is particularly the case with Denmark. In the islands of the Mediterranean also, as in Malta, Minorca, and all those of the Grecian Archipelago, we are told, by Dr. Southey, and other authors, that consumption is of very rare occurrence.

On the Alexandrian coast, it appears to be altogether unknown ; while at Aleppo, which has an intermediate latitude, but which is situated at a greater elevation, and is more distant from the sea,

it is said by several writers on the disease, to be very prevalent. It is also a well known fact, and particularly mentioned by Dr. Trotter, in his "*Medicina Nautica*," that consumption very rarely occurs in seamen, except under peculiarly unfavourable circumstances.

That this disease is, nevertheless, too often met with on our own coasts, is equally certain, though it is there less prevalent than elsewhere; and it usually arises under the combined influence of crowded towns, a bleak and exposed aspect, and great humidity of soil, or under exposure to cold winds from neighbouring mountains; it is said also to be very common in the interior of the island of Iceland, but much less frequent on its coast. *

The advantage of a sea atmosphere, in those cases where this complaint already exists, is best inferred from general experience; and the most satisfactory proof of its adaptation, may be deduced from the numerous ages in which its benefits have been sought.

Aretæus, who lived almost 460 years before the

* Dr. Southey on Consumption, p. 31.

Christian era, is I believe the first who recommended sailing and a sea atmosphere in consumption: and although so many centuries have rolled away since his time, and so many publications concerning this disease have appeared, we find very few individuals who dissent from his generally received opinion.

Dr. Duncan observes, that he has not seen, in his practice, any thing which tends to confirm the idea that sea air is injurious in consumption, and he recommends a residence on the coast; and, among many others, Dr. Gilchrist has published cases in which the greatest benefit has resulted from the effects of sea air, and has shown that those persons who reside on coasts, are decidedly less subject to this complaint than those who live more in the interior of the country; he also observes, that, as sea-air is beneficial in these cases, so, on the contrary, too dry an atmosphere is unfavourable; which circumstances are in perfect accordance with the experience of other physicians who have particularly attended to this disease.

I cannot indeed avoid remarking, in this place, that every medical practitioner on the southern

coast, must have met with striking examples of the different effects produced on the organs of respiration, by a land and a sea atmosphere. I have myself seen them so powerfully displayed, that, in the case of a young lady who had long laboured under an extreme degree of irritability in the membranous lining of the lungs, though, at all times, she felt perfectly free from inconvenience during the prevalence of south, south-west, or western sea breezes, no sooner did the wind veer to the north, or north-east, and blow from the land, than she could detect the change even before rising in the morning, by the cough and oppression which succeeded; and on inadvertently running only a few yards against such a wind, she has become very alarmingly affected, by almost a total cessation in the powers of breathing; the vessels of the lungs appearing to suffer a spasmodic constriction, and an inability to continue their circulation, while the actions of the heart were hurried and irregular, and the countenance rendered of a purple hue by venous congestion.

But examples, constantly presenting themselves,

of the greater suitableness of a sea atmosphere, than that of the land, in affections of the lungs, much speculation has been excited concerning the causes whence its benefit is derived; some persons attributing it to its peculiar chemical constitution, while Dr. Cullen and others, have assigned it chiefly to its mild and agitated character, and the comparatively slow degrees by which changes in its temperature are effected.

Dr. Knox has furnished us, in the *Edinburgh Philosophical Journal* for October 1821, with a very interesting example of the little variation the temperature of the atmosphere undergoes at sea; afforded by an accurate register, kept between the third and twenty-fifth of April, 1817, in a voyage from the south coast of England to Africa, between latitude $50^{\circ}.2''$ and $20^{\circ}.24''$ north.

This gentleman has shown, that, throughout the whole voyage, the progressive change experienced at noon each day, averaged only one degree; the temperature of the air on leaving England, was 53° , and on his arrival 73° ; that of the sea, on our coast, 49° , and on the African 71° , in like manner

progressively advancing from one to two degrees each day, as he proceeded southward.

The opinion of Dr. Knox, on the curative influence of a sea atmosphere, in this disease, is best expressed in his own words, which I take the liberty of quoting: "From the above table, and a few others which exist, may be seen the remarkable equability of the temperature, enjoyed, as well by the great ocean, as by the superincumbent atmosphere—this, which is neither disturbed by storms, nor changes of seasons, nor by the vicissitudes of day and night, has not been sufficiently insisted on by meteorological, and but ill understood by medical writers. Hence we find them attributing to various occult qualities, the healing powers of marine air in several diseases, and more particularly in pulmonary consumption. Either, not understanding, or not believing in the extraordinary equability which prevails in the air over extensive oceans, they have ascribed the effects arising from this alone, to the saline humidity of marine air. Nearly all the facts which the annals of medicine contain, tend to prove, that to

the mildness and equability of marine air, is to be ascribed its extreme salubrity in pulmonary diseases."

The advantages arising from this source, are greater on the southern coast of England, than in any other situation our country affords; but these having been, I presume, sufficiently demonstrated in other parts of this volume, it will be unnecessary to repeat them, although they are of so very great importance in the disease now under consideration.

To individuals whose peculiarity of constitution indicates a liability only to this complaint, sea-bathing also, when cautiously employed, has been often found of the highest utility; as every thing connected with the conformation of such persons, exhibits the absence of that tone and power in the system, which the bath is so efficient in imparting.

Thus, in the consumptive, the muscles are usually soft and flaccid, and deficient in their contractile force; the complexion generally fair; the extremities frequently cold, and often with difficulty re-

stored to their natural heat ; the feet and ancles liable to become swollen, particularly after long standing ; and the pulse commonly smaller, and quicker than natural ; all of which circumstances exhibit a want of vigour in the circulating and absorbent systems.

Where, however, these symptoms are decidedly marked, it is necessary to commence bathing with the tepid sea-water, and to reduce its temperature gradually ; but, where those of inflammation have evinced themselves, however obscurely, it would be highly imprudent to have recourse to water of a low temperature ; as the sudden determination of blood to internal parts, and the derangement in the circulation thus occasioned, could scarcely fail to be productive of serious injury.

In the incipient stages of consumption, therefore, the tepid and the warm bath, of moderate degrees of heat, must be substituted for cold bathing, and these, by their tendency to equalize the circulation, and to alleviate the symptoms of uneasiness in the chest, will prove highly beneficial ; while, by their soothing influence, they allay that

nervous irritability which is often present. The bath, in these cases, should never be employed at a higher temperature than from 90° to 94° or 95° , and fifteen minutes is as long as the patient can with propriety remain in it.

The necessity for gentle exercise, in invalids predisposed to consumption, is as evident as it can be in any instance of disease which falls under our notice. To avoid repetition, therefore, as far as it is possible in a work of this nature, I beg to refer the reader to what has before been said on that subject, under the heads indigestion and rheumatism, as it is by no means less applicable to this complaint.

The superior advantages which sheltered situations on our southern coast offer in these cases, also, are not less displayed, in the opportunities they afford of using exercise at almost every period of the year; so effectually, as I have already observed, do they screen the invalid from the more piercing and pernicious winds.

There is one kind of exercise, afforded by a residence on the coast, to such as are predisposed

to consumption, which has with great reason been highly extolled by almost every writer on the disease, and whose advantages are justified by general experience; I allude to that of sailing. For although many serious objections are justly opposed to undertaking long voyages, when the disease has made greater progress, such objections are by no means applicable to short aquatic excursions in the cases which we are now considering; on the contrary, sailing, as an occasional exercise, is, in them, often found of the greatest possible utility; and, hence, we find it strongly recommended by those physicians, who, from the longest experience, are the most opposed to the former; amongst whom may be mentioned Dr. Duncan, whose just observations concerning extensive voyages, I have before noticed.

By the gentle motion which sailing imparts under favourable circumstances, it may also frequently be employed with much advantage where greater bodily exertion cannot be undertaken; and in such cases, it materially assists in mitigating the urgency of the existing symptoms.

But exercise in its general sense, is of so much

importance in this affection, as it is, indeed, in all other complaints in which the constitution is liable to suffer materially from local disease, that every favourable opportunity of employing it moderately, should be taken advantage of by the consumptive invalid.

The remedies, of a strictly medical nature, which have been found the most useful in the different stages of consumption, belong to several distinct classes, and, consequently, they are greatly varied in their properties.

Where there exists only a predisposition to the complaint, great benefits result from the use of tonics; which, in combination with the auxiliaries before mentioned, afford the most effectual means of restoring the general vigour of the system, and thus of enabling it to avert the insidious advances of the disorder.

In its primary stage, the greatest advantage is derived from the aid of those remedies which are most useful in counteracting an inflammatory tendency, or of subduing inflammatory action, should it already exist, combined with a careful observance of other means and regulations tending to the same

important end; and, subsequently, from the employment of other medical agents, whose utility, the peculiar symptoms and progress of the case can alone indicate.

For further observations on diseases of this character, I beg to refer the reader to the succeeding chapters.

WINTER COUGH.

THERE are several important considerations immediately connected with the preceding disease, to which I have hitherto only briefly adverted; and which, as they apply no less forcibly to the subject of the present chapter, and as the exciting causes of both disorders are similar, have been reserved for our notice at this time.

In calculations which have been made on the force of the circulation, it has been computed, that a volume of blood, equal to five times that which passes through any other organ of the body, is, in the same space of time, constantly propelled through the delicate vessels of the lungs.

When, therefore, we regard the extraordinary degree of vascularity possessed by the lungs, and

consider that the extent of the surface of the air-vessels in their interior, is equal to several times that of the exterior of the entire body, and that this wonderful extent of delicate membrane is constantly presented to the action of the external air, we cannot feel surprised that it becomes so often subject to the unfavourable impressions resulting from our variable and changeable atmosphere, but we shall rather be astonished that this is not yet more frequently the case.

Hence, disorders of the organs of respiration constitute that class of diseases, from which the inhabitants of Great Britain have most to fear; not more on account of their prevalence and their varied character, than of the severe forms under which they so often present themselves.

It is a melancholy consideration, that the number of those who fall victims to such diseases within the boundaries of London only, as ascertained by the most careful investigations, amounts to between four and five thousand annually; and it has been calculated by some of our most accurate medical authors, that no less than from

forty to fifty thousand individuals die from similar complaints, in the united kingdom, every year.

When we compare this proportion with the whole of our population, and with what occurs from similar causes elsewhere, we find that it is, as before observed, greater than in any other nation with which we are acquainted; and, that it must be chiefly assigned to the peculiarity of our climate, may be inferred from the fact, that the latter not only thus exhibits its effects on the permanent inhabitants of Great Britain, but, in a still more decided manner, on those who visit us from situations less liable to the variations we experience.

This is piteously exhibited in Africans, natives of the East and West Indies and South Seas, and other warm regions of the globe; nor is it less conspicuous in those quadrupeds and birds which are imported hither from tropical climes, the great majority of which, have been found to die from affections of a similar nature, many of them showing, on subsequent examination, all the characters of true consumption. Yet, although a predisposition to consumption is so frequently induced

by these atmospherical causes, there are several other disorders of the organs of respiration, similarly influenced, and no less capable of deriving the greatest benefit from the more equable temperature and other advantages afforded by our southern shores.

Among these diseases, there is one, to which I am more particularly desirous to direct the attention of the reader; since, although it is usually less urgent in its symptoms, and less rapid in its progress, than consumption, it not unfrequently proves highly distressing to the patient, and dangerous in its consequences.

This is the complaint called Winter Cough, or chronic bronchitis, which so often exists in persons of a debilitated frame, and more particularly when in the decline of life, though by no means unfrequent in the young.

In more northerly and exposed situations this disorder is of very common occurrence, yet, from the circumstances before mentioned, it has excited much less attention than consumption; like the latter, its foundation is laid by debilitating causes, and it is called into action by sudden changes

in atmospheric temperature, the influence of the atmosphere being, I believe, its only exciting cause.

In the earlier stage of this disease, therefore, its presence is almost wholly confined to the winter period; it usually leaving the patient as the temperature of the summer months increases.

As this disorder has its seat in a portion of the respiratory organs which is even more exposed, than the seat of true consumption, to the influence of the external air, the individual affected is often more acutely susceptible of the effects of trifling variations in the state of the atmosphere; as was so strikingly exhibited in a case of this kind noticed in the preceding chapter. Even the opening of a door not unfrequently subjects the invalid to violent and distressing fits of coughing, which are often attended with a copious expectoration; he is also troubled with a sensation of tightness and oppression about the chest, and, after the disease has long continued, he finds himself, during the colder periods of the year, almost incapacitated for walking even short distances, so great a degree of sensibility and irritability have the lungs acquired.

The respiration of the patient is frequently short

and difficult, and deep inspirations are generally succeeded by the cough, which, during the night, is often particularly troublesome, and destroys his repose ; he consequently becomes emaciated and weak, and his pulse is rendered small, quick, and feeble.

The great increase of coughing, which takes place on retiring to bed, arises from the change commonly experienced in the temperature of the apartment ; the cough is also more urgent and distressing during the prevalence of east and north-east winds, than at any other period.

These winds are, indeed, not only the most powerful enemies which invalids, already afflicted with pulmonic diseases, have to encounter, but we may perceive the susceptibility of the delicate membranous lining of the lungs to their impressions, in a greater or less degree, in those in whom only a predisposition to disease in the chest exists ; this susceptibility being generally one of the most early and unequivocal symptoms of such predisposition, and becoming manifest at a period when the individual possesses, as yet, all the bloom of health.

But winds of this kind are not only productive of these effects, where a predisposition to such affections is already present, but they are often the independent causes of inflammatory affections of the lungs and chest, where no original tendency to them could be supposed to exist; an interesting example of which fact has been mentioned by Dr. Carrick, in reference to the influenza of 1803. He observes, that "one of the most open and exposed of the buildings on Clifton Hill, is Richmond Terrace, which forms three sides of a parallelogram, fronting respectively the east, south, and west. On the east side, not one family, and scarcely an individual, escaped the complaint; while, on the south side, a great majority, both of persons and families, in all other respects similarly circumstanced, escaped it entirely."

Recorded instances of so striking a nature as this, with those which result from daily experience, sufficiently establish, therefore, the influence of these dry and piercing winds on the organs of respiration; but more especially among the inhabitants of Britain, a people, whose insular situation, and the humid nature of whose climate probably

increases their susceptibility to injury from these causes.

Chronic, or winter coughs, generally commence in the most gradual and insidious manner possible. Their origin is often dated to a common cold, which occurred during the winter period, and was of longer continuance than usual. For several, and often, many seasons in succession, these coughs not only cease to trouble the patient on the approach of the milder temperature of spring, but, during the summer months he often recovers much of that strength and weight of substance which he had lost during the winter, from the harassing nature of his complaint.

So long, however, as the same exciting causes continue to recur, similar effects are produced; until, by repeated relapses of increasing duration, these effects become constant, and the powers of the system give way under them.

This disease prevails greatly in those situations which are frequently visited during the winter by cold fogs, so common in many large towns. In London it very often falls under our notice,

where its frequency, indeed, may be inferred from a remark of Dr. Willan, that within three winter months, out of seven hundred and ninety-five patients under his care, at the Carey Street Dispensary, two hundred and two were affected with diseases of the chest, and yet of this number, only twenty-nine laboured under consumption.

But persons who inhabit a situation exposed to an alternation of wind and fogs, though remote from towns, are scarcely less liable to the disorder; it, therefore, prevails much in some parts of Scotland, and in many of the more elevated situations of England. I have also observed it to be very common in Edinburgh.

This complaint, which has been often mentioned under the name of chronic catarrh, is frequently regarded, by the patient and his friends, as asthma; and the error is rendered the more natural by the absence of any unusual degree of heat, thirst, or pain, which ordinarily characterize complaints of an inflammatory tendency.

Although the progress of the disease is, generally, very slow, and the hopes of the patient, that he is

permanently relieved from his affliction, be revived, by the favourable effects of each succeeding summer, yet, except a combination of suitable means be had recourse to, he too commonly meets with disappointment ; while consequences of a more serious nature ensue, from the injury occasioned by the repetition and increasing severity of his attacks.

With a view, therefore, of awakening the patient to the danger arising from these insidious disorders, when neglected, it becomes a duty to notice briefly a few of those results which are of most frequent occurrence.

It is by no means uncommon for the invalid who has been long afflicted with chronic cough, to be seized, at the commencement of the winter, when the warmer months have rendered him more susceptible to the effects of cold, with a recurrence of his complaint in a much more urgent form than he has ever before experienced, giving origin to active inflammation of the lungs ; which inflammation, when it arises as the result of this disease, is unfortunately too rarely overcome by medical aid, owing to the exhaustion already induced.

In other cases, the inflammation thus established, being of a less active character, terminates in general or partial dropsy; dropsy of the chest, being one of the most common consequences of this complaint; and, evidently, the result of the debility occasioned in the circulating and absorbing systems.

When it becomes general throughout the body, it is often, like the parent disease, slow in its progress; at first appearing in the feet and ancles, and gradually extending upwards, as the animal powers become diminished. It commonly proceeds most rapidly in its course, when it occurs at the beginning of the winter, as the causes which occasion it are then the most permanent and effective. At other times, a kind of spurious consumption is induced by winter cough, which is not more favourable in its termination.

The proximate cause of chronic bronchitis appears to be a peculiar degree of irritability in the membranous lining of the bronchial tubes, extending into the lungs, accompanied with more or less chronic inflammation, and an unusually great secretion of viscid fluid; while the exciting and

predisposing causes may be attributed to a variable and severe state of the atmosphere.

From the whole character of the disease, therefore, it is sufficiently evident that the only effectual and reasonable mode of avoiding its consequences, consists, in combining as far as possible, the effects of an equable and elevated temperature during the winter months, with those means which are the best adapted to impart strength; thus enabling the constitution to contend against the influence of the disorder. The advantages of pursuing such indications, are not only exhibited by daily experience, and their adoption strictly enjoined by all the best writers on the subject, as Dr. Badham, Dr. Beddoes, and others, but they have, I trust, been rendered sufficiently obvious in the preceding pages, to require very little in addition to what has been already observed.

Although material benefit, in these cases, may be constantly derived from a careful attention to the degree of heat employed within doors, yet, as Dr Buxton * has very justly remarked, “where a na-

* Dr. Buxton on the Advantages of Artificial Temperature.

tural elevation of temperature can, without difficulty, be obtained, it is infinitely preferable to an artificial one," as the invalid, in the former case, can adopt additional means of recruiting his health and strength, and chiefly, by exercise, in a pure and moving atmosphere; which very material advantage he is necessarily precluded from enjoying, during a confinement to his room.

Although we cannot reasonably expect the perfect union of the most favourable of all natural means, in our own kingdom; yet, as there are situations which approach this combination so much more nearly than others, their influence may always be sought by patients suffering under these complaints, with the greatest relief and benefit.

This remark, of course applies, with almost equal force, to all the more sheltered situations along our southern shore, where, from causes already enumerated, the thermometer is necessarily much less liable to variation than in any other part of England; and where, during the more severe seasons, opportunities so frequently present them-

selves, of taking exercise under the protection of the cliffs, and within the reflected influence of the sun's beams.

The medicines of the greatest utility in this disease, are, like the other agents, those which are no less instrumental in counteracting the urgency of existing symptoms, than in tending to impart strength to the constitution, and in enabling it to resist the effects of cold; but the great hopes of relief must be founded on a judicious employment of external warmth, whether it be natural or artificial; and when the former cannot be obtained, the latter should never be neglected, as the irritability of the lungs, like that of other organs, is usually increased by exposure to its exciting causes, and the attacks thus occasioned, recur more frequently and are of longer duration.

In pulmonic diseases of every kind, temperature can alone be properly regulated by an attentive observance of the thermometer, which is the more necessary in them, as only a few degrees of variation are sometimes of very great importance. The

SECRET

THESE COMMENTS WERE MADE BY THE SAME INDIVIDUALS WHOSE
NAMES I HAVE GIVEN IN THE LAST PAGE. THAT IT IS
ABOUT THE SAME AGE IS EVIDENT. THAT IS THE SAME TYPE
OF PERSONALITY.

ASTHMA.

THE capricious nature of asthma, renders it difficult to speak of the advantages derivable from any particular situation, with so much certainty as in the preceding disease; yet as atmospherical causes of various kinds, are proved, by daily experience to be very active in inducing its paroxysms, I feel fully justified in classing it amongst those disorders, in which the greatest benefit may be expected from the southern coast.

Many of the characters of this complaint are so similar to those of chronic bronchitis, that these affections are often mistaken for each other; although differences between them, are in other respects so clearly defined, as to constitute the phenomena of two very distinct diseases.

The immediate cause of this distressing disorder, like that of several others, has afforded a subject of very extensive enquiry.

By Dr. Cullen, and most other celebrated physicians who preceded him, but more particularly by Hoffman, and Sir James Floyer, the symptoms which present themselves were uniformly attributed to a spasmodic constriction of the bronchial cells of the lungs.

More recently, however, this explanation has been controverted by Dr. Bree, who, in an ingenious and scientific work on the subject, attributes them, chiefly, to an irritable state of various parts concerned in respiration, more particularly of the membranous lining of the lungs, but usually unattended with any degree of spasmodic constriction.

This irritability, in elderly and debilitated persons, is thought to be generally excited by accumulations of fluid in the bronchial cavities, occasioning, by their presence, constriction in the chest, difficulty of breathing, cough, wheezing, and other unpleasant sensations, which continue, until,

by producing a sympathetic convulsive action in the various muscles concerned in respiration, the offending fluid is removed.

Asthmatic paroxysms, nevertheless, take place without any expectoration ensuing, in which cases they may arise either from mere irritability of the internal membrane, conveying, as in the former case, its sympathetic impressions to the muscles of the chest ; or, from an habitual convulsive action only, which these muscles may have acquired, by the repeated occurrence of previous attacks.

Asthma may also be a continued disorder, and may be little liable to experience any very evident increase or diminution in the urgency of its symptoms. This form of the complaint is most frequently seen in persons who have been some time affected, and, under such circumstances, its symptoms are thought, by the eminent physician last named, to owe their existence to the uninterrupted operation of causes which tend to produce the before-mentioned irritation.

Asthma is another of those diseases, which are greatly influenced by constitutional predisposi-

tion, and it consequently appears to be often of hereditary origin.

When, by its protracted influence, it has greatly exhausted the powers of the constitution, the most frequent consequences of this complaint are very analogous to those which occur in chronic bronchitis; dropsical effusions, or diseases of the arterial system being induced by the irregularity occasioned in the circulation.

When asthma has once appeared, the causes which excite its attacks become so numerous and varied, that it is often difficult to detect that which at present operates; and this is more especially the case, since, with the frequency of the paroxysms, the lungs usually acquire an increased susceptibility, which renders them, in the progress of the disease, liable to receive impressions from causes by which, they were comparatively little influenced in its earlier periods.

Amongst the most common of these, an irritable or deranged state of the alimentary canal, appears to be one of the most prolific; though this cause is not only efficient in inducing the recurrence of asthma, but in giving origin to the disease.

The passions, or sudden emotions of the mind, are equally liable to occasion similar effects; this is the case also with certain unknown, and subtle properties in the atmosphere; and hence, the incapacity often experienced by asthmatic patients, for residing in particular situations, while other situations, apparently in every respect similarly circumstanced, but whose atmosphere, we may presume, is not subject to such impregnations, are productive of no inconveniences. Venous congestions in the lungs, produced by violent exercise or other means, or an increased rapidity in the circulation, occasioned by the use of vinous and spirituous liquors, are equally liable to act as the existing causes of asthmatic paroxysms.

But there are none which more frequently or effectually exert this influence, than either vicissitudes in the atmosphere, diminished atmospheric pressure, or exposure to the irritating properties of east, and north-east winds; all which may more readily be avoided by the before-mentioned means than by any others; and whether we receive the doctrine of spasmodic constriction, as the proximate cause of this complaint, or irritability, independent of

22. RELATIVE INFLUENCE OF THE COAST.

These two powers are equally appreciable, and are constantly witnessed.

The fact, that the heavy air, if not in motion, is less favourable to the asthmatic invalid, is evident from the operation of its great weight, which, by depressing the air-vessels, & the lungs, hinders the transference of the large quantity of oxygen imparted at each inspiration, to an atmosphere whose volume is thus diminished.

But the relaxing and other properties before noticed, if an accompaniment of the wind, when put into motion, are more than equivalent to these advantages: and in asthma, as in all other diseases of the chest, they are almost invariably productive of serious inconvenience.

Of the favourable tendency, also, of a heavy atmosphere, we have the fullest evidence, in the advantage which asthmatic invalids usually derive from low situations; for, in these, their respiration is generally rendered more free, though even carried on amidst the smoke and impurities of large and populous towns, than in a purer atmosphere, at a higher level.



Vicissitudes of temperature are, on the contrary, no less pernicious to the asthmatic patient, on the principles which I have before endeavoured to explain; an atmosphere, therefore, which combines purity, with the greatest specific gravity, and equality of temperature, is, in general, no less adapted to asthmatic complaints, than to all other pulmonic disorders.

It will be readily conceived, from the varied nature of these affections, and the numerous causes on which they depend, that there are few classes of medicines which may not occasionally be found capable of imparting benefit to the patient; and such as possess tonic, narcotic, antispasmodic, emetic, or purgative properties, are employed with the greatest advantage.

But asthma, like all other complaints which are liable to frequent returns, can only be ultimately overcome, by avoiding, as far as possible, the exciting causes; and, during the absence of the disease, by taking due advantage of those measures, which are best adapted to increase the vigour of the constitution, and to enable it successfully to repel future accessions.

The uses of steam and electricity are, as in sev-
 eral of the preceding machines, particularly adven-
 tageous, and the investigating influence afforded
 by moisture and easily separated food frequent, but
 machines existing, and by baking is no less power-
 fully exhibited.

The warm sea-water bath is not usually productive of benefit when employed during the presence of a paroxysm: but, in its absence, it is a remedy of very great utility: as is also cold sea-bathing, owing to the constitutional energy which they are, each so calculated to afford.

HÆMOPTYSIS.

The benefits derivable from similar sources will be no less apparent in those cases of pulmonic disease, where there is a tendency to hæmoptysis, or hæmorrhage from the lungs; to which the whole of what has been said respecting atmospherical and other influences in the preceding chapters is referable, in an especial manner; and to which, for

the purpose of avoiding unnecessary repetition, I must beg to refer the reader.

But in regard to these complaints, I cannot refrain from repeating, what has been said in another place, concerning the tendency of cold, applied to the exterior of the body, to determine the blood from the minor divisions of the venous system, into its larger cavities within.

This being a very old opinion, particularly enforced by Galen, its refutation has been attempted, by the fact, that hæmorrhage from the lungs, in the practice of Dr. Curry and others, has been checked by the use of the cold-bath; such, however, appears to me to be an unfair, and rather a dangerous deduction; since the peculiar sympathy which exists between the extreme vessels ramifying within the body, and those distributed on its external surface, is so great, that cold suddenly applied to the surface, is at all times likely to arrest, temporarily, bleeding from the smaller internal vessels, and, more particularly, from those of the lungs; but, in such cases, I presume, that by this external cold, the superficial vessels are likely to still remain constricted; while, by the

greater force of the circulation within, which is first augmented by the bath, the sympathetic bond is liable to become broken, and that thus injury may, ultimately, be sustained.

An objection of this kind does not, of course, apply equally to the intervals between the attacks of hæmoptysis; when every means of improving the general health should be had recourse to, and when cold sea-bathing has often been employed with great advantage; although, even at these times, I prefer the use of tepid sea-water, as being the most safe, and perhaps equally invigorating.

DISEASES OF THE LIVER.

MUCH of what has been said on the subject of indigestion, is equally applicable to chronic diseases of the liver, since these are usually connected with derangement in the digestive organs. This is owing to the sympathy which subsists between the functions of the liver, and those of the alimentary canal generally, and the surface of the body; and, consequently, to the dependence of the healthy action of this gland on atmospherical causes. Indeed, next in importance to the operations which these causes exert on the lungs, may be considered those which they produce on the functions of the liver; although, in the latter case, they are less satisfactorily explained.

Liver disorders consist either of organic diseases of this viscus, or merely of an increased, a dimi-

nished, or a depraved state of its secretions; though either of the latter conditions, if it long prevail, will, usually, induce the former.

These derangements frequently arise from errors in diet, and other causes dependent on irregularities of life; and from severe forms, or the frequent recurrence, of other diseases, as intermittent fever; but they are not less often to be attributed almost entirely to atmospherical influences, as we see so constantly exemplified in the diseases of warm, and, especially, of eastern climates, where liver affections may be considered as the *endemia* of the country; and where a European, although he pursue a mode of life as similar as possible to that to which he has been accustomed when at home, and although he partake of the same kind of diet, very generally discovers, after a longer or shorter period, that the functions of this organ become impaired or unhealthy.

Sometimes this change takes place suddenly, and it may then be usually traced to suppressed perspiration; this being speedily followed by an increased secretion of bile, occasioning effects on the alimentary canal more or less severe, according to

the susceptibility of the system, and thus constituting either a mild, or a violent attack of cholera morbus.

On other occasions, the nature of the effect produced by the same cause is very different, the secretions of the liver becoming diminished or suppressed; while the fluids given out by the exhalent, and other orifices within the alimentary canal, are increased or altered, as appears to be the case in diarrhoea and dysentery; or the bowels, on the contrary, may be rendered torpid, digestion impaired, and all the symptoms arising from this prolific source may be exhibited.

Derangements of this kind are generally of a chronic nature; they make their appearance slowly, and are often connected with chronic inflammation; which is accompanied with congestion and irritation, and which, ultimately, leads to enlargement, induration, and various other organic changes in the structure of the liver.

Such, then, are some of the consequences of atmospherical influences on this important organ in tropical climates; which effects are variously modified by the temperament and habits of the

individuals to these, however, not only visitants, but natives, and inhabitants whose modes of living are very different, are all, in a greater or less degree, subject; and by a removal from such a climate, they are usually mitigated, and, occasionally altogether cease to exist.

The same influence is also observable in the occurrence of disorders during our autumnal months, in which the liver is not only materially affected, but is often the chief seat of the disease; and the power which the atmosphere exerts on the functions of the liver, may further be deduced, from the prevailing diseases of cold and humid situations, in which a depraved action in this organ is usually amongst the most prominent features of the complaint.

The necessity, therefore, for a suitable atmosphere in a deranged state of the liver, is not less obvious than in any other disorder to which we are subject; and there is, generally, much less probability of benefit from medical aid, in chronic liver affections, under an unfavourable state of the air, than from a favourable atmosphere, independently of the advantages of medicine; this is

strikingly exemplified in the improvement which so frequently takes place in invalids, during a voyage homeward from the East Indies, when deprived of many of those remedies, at other times best calculated to prove useful.

In these diseases, there is obviously no climate so well adapted to this end, as that whose temperature is least liable to experience either the extremes of heat, or of cold; for, while great heat, by augmenting the perspiration, is so often the predisposing cause whence they derive their origin, great cold is equally opposed to improvement, by the torpidity it induces on the system generally, and by the incapacity it imposes on invalids for taking a suitable degree of exercise; which, as we have before seen, is so especially necessary in chronic affections of the liver.

A sheltered situation, therefore, during the more severe season of the year, is of the highest importance; and in no instance is this more apparent, than when the disorder has been acquired during a residence in the warmer regions of the globe, because the constitution has been then rendered so much

more susceptible to the effects of cold, and of vicissitudes in temperature.

Invalids, thus affected, who are returning from tropical or other warm regions, to the interior of this kingdom, have been judiciously recommended by Dr. Johnson and other physicians, to habituate their constitutions gradually to the extremes to which they are thus subject, by taking up their residence, during the winter season, in a mild and intermediate latitude; and where these most effectual means cannot be conveniently adopted, situations, such as are afforded by the southern coast, offer advantages of the same kind, far too important to be neglected; particularly as they combine other means of the highest utility in the removal of disorders of this character.

Amongst these, the warm sea-water bath, is a remedy whose advantages are justly appreciated in affections of the liver; and, if we except cases of active inflammation, there are, I think, no complaints to which this organ is subject, which may not be materially benefited by its employment; its mode of action has been already noticed in other chronic diseases.

Although a disordered action in the liver, which has continued during a long period, so often produces induration or enlargement, or other organic disease, instances do not unfrequently occur, even in those persons who have acquired their indisposition in tropical climates, where a change in the structure or size of the organ cannot be detected; and where all the symptoms presented, may be assigned solely to the unnatural state of the secretion, which, whether it be dependent on an increased or a diminished action, has been induced by habit; and the same may be often observed in the long train of dyspeptic ailments, so generally prevailing in our own country.

In those cases which depend on a want of secreting power in the liver, whether it be or be not connected with enlargement of the viscus, or with other organic disease, there are no medicines of so much importance as aperients, perseveringly had recourse to; for, by the constant stimulus they impart to the emulgent ducts of the liver, through the nervous communication so intimately subsisting between the stomach and alimentary canal, and this organ, provided the functions of the organ be not

wholly destroyed, they are very frequently capable of inducing a healthy and natural secretion of bile. Setting aside the consideration of mercurial and other medicines, which are so often of the greatest necessity and importance in these diseases, it may also be confidently asserted, that we have few remedies better adapted for the purpose above-mentioned, than sea-water when judiciously employed.

The beneficial properties of saline aperients in derangements of the liver, are generally known, from the success which so frequently attends their employment in the interior of the kingdom; and although the saline constituents of the Cheltenham, Gloucester, and other springs of this country, differ from those of the sea in their proportions, their general properties are decidedly the same; nor do I conceive, that, in the generality of instances, the use of the waters of these justly celebrated springs, is attended with any more evident benefits than are usually imparted by that of the sea, when it is properly employed; or when used, like the before-named waters, either in combination, or in alternation, with other co-operative remedies.

The necessity for seeking the aid of the most efficient natural agents which our country affords, in eradicating or mitigating the influence of these disorders, is the more imperative, since liver diseases, like a long disordered state of the stomach, are generally attended with symptoms, which, by their permanency, often give origin to affections of other organs, whose derangement is more to be feared. This observation more particularly applies to the cough, so often prevalent in these complaints, it being, with the debility an impaired state of the digestive organs induces, not unfrequently productive of a species of consumption, constituting what Dr. Wilson Philip denominates hepatic phthisis.

EFFECTS OF MERCURIAL MEDICINES.

My object, in the preceding observations, has been to notice the beneficial effects which result from the various means afforded by a residence on the coast, during the actual progress of disease; but there are certain states of derangement in the system, arising as well from the nature of the remedies occasionally employed, as from the disorder itself, in which coast advantages are by no means less important; and in no instances are they more obviously so, than in the various complaints in which the free exhibition of mercurial medicines has been demanded, as in the different disorders last under our notice.

The peculiar properties which mercury possesses, of exciting absorption, of inducing an increased ac-

tion in the most important organs, and of effecting various other marked changes in the system, renders its use indispensable in many diseases; but from the very great power which it exerts on the constitution, there are few instances where it has been very freely employed, or its use been long protracted, in which it has not been followed by a greater or less degree of debility and irritability, effects, which it is always highly desirable to remove. Their removal, however, is not at all times easily accomplished, on the contrary, it is, in many cases, attended with great difficulty, and they then become scarcely less harassing, and often, indeed, still more distressing to the patient, than the original disorder.

These unfortunate effects are more particularly displayed, in a morbid excitability of the nervous system, in which the stomach and alimentary canal greatly sympathize, and they are sometimes combined with a considerable degree of despondency, which very much retards the beneficial operation of the most suitable remedies; while loss of appetite, incapacity for motion, restlessness, and

the other usual symptoms of debility are no less commonly induced.

Effects of this kind most frequently result from the use of the medicine, in persons of delicate constitution, and especially in those females who lead very sedentary lives, and who are the residents of populous towns; the symptoms, however, necessarily vary, according to the constitutional peculiarities of the individual.

To counteract these results, numerous medicines have been recommended, by various medical writers, as by Mr. John Hunter, Mr. Abernethy, Dr. Carmichael, and others; among which medicines, tonics, narcotics, or antimonial preparations, have, each, in the hands of different practitioners, been found the most useful; all writers, however, agree concerning the unequivocal and general utility of change of air; and, in combination with sea-bathing, it may be justly esteemed as the most effectual of any means, that can be employed, to overcome the morbid effects which this powerful remedy may have produced.

In these cases, mental anxiety and dejection of

spirits are usually among the most prominent symptoms, and, by the disinclination and incapacity for bodily exertion, which they induce, they materially favour the continuance of the other distressing effects.

Change of scene, therefore, is no less adapted to prove beneficial in these affections, than in others, in which mental irritability and despondency are combined with an impaired state of the digestive functions.

In bathing in salt water, to remove the effects of mercurial irritation, the temperature to be employed, will necessarily be governed by the strength and vigour of the system, which, as I have remarked, will often be found to have sustained a material diminution; whence, in these cases, cold sea-bathing is not, at first, so suitable, as the tepid or warm bath; but should no organic disease remain, to oppose the employment of the former, it may be speedily resorted to with the greatest advantage.

In such derangement of the system, the mild and tonic influence of sea breezes is no less calculated to prove salutary; and those, especially, should

be sought by the invalid, which are afforded on the most sheltered parts of the coast ; since the constitution, when under the influence of mercurial action, is so much more susceptible to the impressions of cold, than under any other circumstances.

EFFECTS OF LOSS OF BLOOD.

IN addition to those states of debility in which patients are left by every kind of indisposition, whether it may or may not, involve organic disease, there is another class of disorders, for which a residence on the coast, and the due employment of the sea-water bath, may be considered as no less important than in any of those already noticed ; I refer to those frequent states of exhaustion induced by hæmorrhages ; it being surprising how rapidly and effectually the tonic and restorative properties of sea-air and sea-bathing, are in them communicated to the system, even where the usual kinds of tonic medicines have long been employed in vain.

As profuse hæmorrhages, therefore, of whatever kind, or from whatever cause or complaint they

may originate, derive, from the inhalation of the soft sea breezes, and from the moderate use of the salt-water bath, so powerful a curative influence, invalids will do well in not neglecting these advantages when circumstances will admit of this being had recourse to.

But these remarks are by no means exclusively applicable to the debility thus occasioned by various diseases, since it is not less obvious, that the long remaining effects of bleeding, and of other depleting remedies, employed to overcome previous disorders of another character, may, to an equal extent, be removed by the same agents.

It is more particularly in those persons whose constitutions are naturally delicate, or who have passed the earlier periods of life, that the most frequent and permanent inconveniences are sustained from loss of blood; the powers of the system being then so much less capable of overcoming the shock it may have experienced; and it is subsequently to the removal of inflammatory affections, that the greatest necessity exists, for combining those means which are most effectual in restoring the original vigour of the constitution.

But a very impaired state of the system, arising from extensive bleeding, employed to overcome previous disease, is often presented to our notice during other periods of life; and from the more frequent occurrence of inflammatory affections in the young, even children are far from being exempted from these effects. And it is the more necessary that they be speedily removed, since the individual is often, not only long exposed to inconveniences and incapacity for exertion, dependent on this state of exhaustion, but is left, in that very condition, which renders him the most susceptible to the attacks of other diseases; a state, characterized, by great paleness of countenance, a frequent and feeble pulse, the circulation being easily thrown out of equilibrium, and, by all the other symptoms, which demonstrate the frame to be least able to contend against the influence of unfavourable agents.

OTHER CAUSES OF DEBILITY.

It will be apparent, that what has been said in the last chapter, concerning the influence of the coast, is no less applicable to all those states of disease, in which the powers of the constitution have been reduced, by inordinate, or protracted excretions, of whatever kind; one only of which, I shall more particularly mention.

I allude to that state of debility, and to that train of morbid symptoms, which are so often induced in delicate females, by the period of weaning having been too long delayed, or from lactation having been allowed, otherwise to exceed the natural powers of the system; since the effects thus produced, so accurately described by Dr. Marshall Hall, are among those, in which patients may,

with the greatest certainty, anticipate a speedy recovery, from the tonic influence of sea-air and sea-bathing.

In another class of disorders, originating, in like manner, from an enfeebled state of the animal powers, but productive of symptoms of an opposite character, or those, in which a deficiency or absence of the secretions or excretions exists, it is almost unnecessary to add, that the same agents have in all periods, been resorted to, with the greatest confidence, and with no less decided advantage; and, in these cases, I do not hesitate to say, that the union of natural chalybeates, with coast benefits, constitutes the most favourable curative combination with which we are acquainted.

Those various states of chronic debility in the nervous or muscular systems, or, in the digestive functions, which constitute the sequelæ of slow and protracted fevers, and of other diseases of a febrile nature, like the primary disorders of the digestive organs which are accompanied with a feverish tendency, are all of them, of a nature, cal-

calculated to derive the greatest possible benefit from the coast. And even in recent cases of paralysis, which have not been dependent on organic change, the effects which have arisen, from the persevering employment of frictions, and the warm sea-water bath, have been of the most favourable kind.

In having thus noticed, more particularly, the foregoing diseases incident to maturer years, it is far from my idea, that they only, have a powerful claim on the advantages I have endeavoured to exhibit: for, when we survey the list of human maladies, we find, on the contrary, comparatively few, in some stages of which, great benefit may not be derived from these sources; and in all cases, in which debility is the more prominent feature of the complaint, the mild and healthful influence of southern breezes, the invigorating tendency of warm and cold sea-bathing, and the enlivening agency of the varied exercises attainable on the coast, are all powerful indications of its curative influence.

And, since we have perceived the acute sensibility

of the respiratory organs, to the varied qualities of the atmosphere, to no class of invalids will these observations be seen by the reader, so particularly to apply, as to the inhabitants of large and populous cities, who are surrounded by air, more or less vitiated and decomposed, by the presence of smoke and various effluvia, and by respiration ; and who, consequently, of all patients, make the most rapid advances towards health, on removing into an atmosphere of purity and salubrity.

DISEASES OF CHILDREN.

IN many of the diseases of children, I am particularly anxious to call the attention of the reader to coast advantages, from the invaluable influence they are capable of imparting; and not less, from the conviction, that such benefits are too often overlooked by parents, who, in their tender solicitude, anxiously expect, from medicine alone, that aid, which can only result from the union of the most powerful means which nature herself has afforded.

Independently of more humane considerations, the important effects which the disorders of childhood produce on the health and well-being of society, enforce the necessity of combining every possible advantage in their favour; yet I am convinced, that to the unfortunate neglect of the more natural remedies, and the resort to such only as

are more readily attainable, may be attributed the development of many of those chronic diseases, to which we so often see youth subjected; and which, in later years, are injurious, no less to the comfort, than to the prospects in life, of the individual.

The constitution of children, renders them, not only more susceptible to those external circumstances, connected with peculiar locality, which are productive of disease, but, imparts to them the capability of deriving, more speedy and greater benefit from natural sources, than is commonly possessed in after life; and, although, in every stage of existence, a pure and wholesome atmosphere tends so materially to the acquirement and enjoyment of health, to the young, this is far more essential; whilst every other means of contributing to its insurance, is no less imperatively demanded by them.

These observations are supported by the fact, that during youth, the various functions employed in supplying nourishment to the body, are far more active than in the after periods of life, hav-

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MATION AND DEPOSITION OF NEW PARTICLES, TO MAINTAIN
THE EQUILIBRIUM AND PERFECTION OF THE WHOLE.

IT WOULD, SUBSEQUENTLY, THE DEPOSITION, OR THE
FORMATION OF THE HEAT, IS REQUIRED GREATLY TO SUR-
PASS THE HEAT OF THE HEAT, OTHERWISE NO INCREASE IN
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IT WOULD, FOR, AN EQUILIBRIUM IS ESTABLISHED BETWEEN
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comes unable to afford a supply equivalent to the demand, the size and powers of the frame, gradually, become diminished and impaired.

As food is the source whence the nourishment of the body is derived, so the air, by the change it produces on this nourishment, through the medium of the blood, adapts it to the purpose of supporting our existence; the mutual operation, therefore, of food and air, in effecting the important process of nutrition, it being impossible that either should duly perform its office, without the perfect co-operation of the other, renders it evident, that pure and wholesome qualities in the atmosphere, are as essential to the healthful development of the body, during youth, as the same qualities, in the food which is employed.

The constitutional demand for food, is made known to us by feelings which cannot be mistaken; and, in childhood, these are even still more powerful and frequent, than in later periods of life; this arises from the before-named causes, which, also, exhibit the necessity for a liberal supply.

The want of wholesome air, however, does not manifest itself on the system so unequivocally, or

imperatively, no urgent sensation being produced comparable to that of hunger, and hence, the greater danger of mistaking its indications; the effects of its absence are only slowly and insidiously produced, and thus, too frequently, are over-looked, until the constitution is gradually impaired, and the body equally enfeebled.

A child so circumstanced, although it neither suffer from pain or fever, loses the ruddy appearance of health; its countenance becoming pallid, and acquiring a certain anxious expression; it often ceases to grow in proportion to its years, and a degree of listlessness, and a morbidly increased, or a diminished appetite for food prevails; until, if recourse be not had to the only rational remedy, that of a removal to a more salubrious situation, disease, in some positive form, creeps on, as the natural result of this state of privation; as may be so constantly observed in those, naturally, healthy children, which reside in crowded and confined situations.

There is, indeed, no cause so efficient in the removal of the bloom of health, in persons of maturer years, as a vitiated atmosphere; whence

crowded residences, and large assemblies of any kind, are alike incompatible with its possession; while to a pure air, on the contrary, owing to its power of supporting the energies of circulation, may generally be attributed, that florid complexion so commonly observed in those who reside most under its influence.

As, therefore, in children, the important process of assimilation can only be properly performed when a pure atmosphere is breathed, it becomes as requisite, under a deranged state of their health, to make a judicious choice of the air to be respired, as of the kind of nourishment, or the medicine to be administered; for, since a vitiated medium is not only so favourable to the support, but also to the production of disease, it is often vain to resort to medicine, or to adopt other methods for restoring health, unless the combined influence, be sought of a purer and more suitable atmosphere.

SCROFULA.

THIS is one of the complaints, which, most commonly, arise from continued exposure to an unfavourable climate, and the joint operation of other debilitating causes; for, it may not only exist, as the result of a certain predisposition, but, like consumption, it may be produced by these means, in children to whose ancestors it was unknown; and, whatever be the type or character it may assume, it is also, one of those diseases which usually derive the most evident benefit from a residence on a sheltered coast,

It is so difficult to determine, which has the greatest power in the production of scrofulous complaints, whether, original predisposition, a cold and humid, or otherwise unsuitable atmosphere, or a poor and innutritious diet, connected with a want

of due attention to the state of the digestive organs during infancy and youth, that different authors have assigned their existence, almost exclusively, to one or other of these causes.

In tropical, and in cold countries, this disorder is very little known; its principal seat, in the temperate zones, is between 45th and the 60th degree of latitude; and here it most prevails, in exposed situations, which are liable to the chilling influence of an air loaded with humidity; as in Holland, and in the fens of our own country.

The injurious properties of an atmosphere of this kind, on persons of more mature age, in abstracting heat, and in retarding exhalation, having been already mentioncd, we shall not be surprised that the same causes should exert an influence equally active, on the delicate and susceptible frames of infants; the same influence is also exhibited in the improvement which takes place, almost invariably, in these affections, on removing to a warmer climate, and, often, in our own country, on the arrival of the summer months.

Scrofula also, after exposure to a cold and damp atmosphere, occasionally appears very sud-

denly; some remarkable instances of which, have been recorded by different physicians; but the most piteous examples of the effects of climate, in inducing this complaint, as also consumption, are seen in those young persons who visit this kingdom from warmer regions of the globe; in whom, it often assumes forms, far more severe, than are usual in the inhabitants of this country.

Mr. Pearson, who had the superintendence of the education of African boys, brought hither from Sierra Leone, informs us, that almost the whole of them died of these diseases; and he observes: "It is remarkable, that boys brought over from tropical climates, from the age of eight to eleven years, almost uniformly become scrofulous; they bear the first winter tolerably well, but they droop during the second, and the third generally proves fatal to them. In girls, consumption is often the primary complaint."*

But, although, climate, has so powerful an influence in the production of these disorders, yet, as so great a proportion of individuals who are similarly

* Ann. Med. Rev. vol. 2. p. 130.

exposed to it, escape these effects, it is evident that a certain constitutional susceptibility is necessary to induce them.

This susceptibility has been, very generally and indiscriminately termed hereditary predisposition; from the greater prevalence of the complaint in some families than in others, and from its frequently appearing under circumstances which would seem least to favour its production.

But, that scrofula constantly occurs, and even in its worst forms, in persons, whose ancestors have never known the disease, and consequently, in whom the term hereditary predisposition is misapplied, is equally certain; as in the melancholy case of the African boys; and as in innumerable other cases, where the parents and ancestors of the afflicted children, have been equally free from the disorder.

From the baneful consequences which arise from a want of due attention to the nature of the food, and to the state of the digestive organs, during infancy and childhood, some authors have attributed it almost exclusively to this source; and have assigned its phenomena to the effects of acidity

in the alimentary canal, formed under a defective condition of the digestive functions, which opinion has been well supported by Mr. Carnichael.

The scrofula of the throat has been also supposed to depend in some degree, upon the vascular system, but more particularly affecting the glands. This doctrine, which first originated, was very generally received, and it has been supported by many authors, especially by Broussais, Verreaux, Des Meis, and others, and Mr. John Hunter; and most persons who have written on the complaint have assigned as immediate cause, to scrofulous and other venereal qualities of the fluids circulating in the lymphatic system. Mr. Goodland, however, supposes scrofulous affections to result entirely from the effects of acid operating on a debilitated system, and producing a chronic state of inflammation in the parts affected; and to be altogether independent of acrimoniae or other humours.

But, whatever be the proximate cause of scrofula, a debilitated, impaired, or otherwise debased state of the constitution, is its general character, and all those causes which diminish constitutional vigour, are the most efficient in favouring

its approach ; especially those which reduce the powers of the digestive organs, as is so particularly the operation of a cold and humid atmosphere, combined with the want of proper exercise.

That a connexion exists, therefore, between an impaired state of the alimentary canal, and this complaint, is evident ; particularly when the mesenteric glands, which form part of the organs of nutrition, constitute the principal seat of the disorder ; but, that a deranged state of the bowels, howsoever occasioned, is, alone and independently, capable of producing it, does not appear ; such derangement being equally liable to occur in countries where the disease is unknown.

As an exciting cause, however, it is evidently able to establish it, under any of its forms ; and we have, I think, every reason to believe, that by a combination of exposure to the effects of a cold, damp climate, the use of unsuitable food, and a want of due and necessary exercise, this disorder may be produced in the most healthy child, the offspring of the most healthy parents.

Hence, the far greater proportion of these cases, where such a combination exists, than in any

other situation ; as has been particularly observed in Manchester. Owing to the greater humidity which prevails there, than in almost any other part of the kingdom, the confinement to which the children are unnaturally subjected, and the frequent poverty of diet which prevails, Mr. Goodlad informs us, that, out of six or eight thousand, who annually seek relief at the Infirmary, actually one half labour under this malady. In Nottingham, on the contrary, we learn, that the proportion, in two years' calculation, was only one in sixty-three ; and in Liverpool, out of fifteen thousand cases, which were admitted to the dispensary, no more than one hundred and forty-two were of this kind.

Among the remedies employed in scrofulous affections, whether they be connected with internal or external organs, either warm, or cold sea-bathing, has long been considered of the greatest importance.

The use of the cold-bath, in any of the diseases of children in which it is a desirable remedy, is also, I think, more uniformly attended with benefit than in grown persons ; for the obvious rea-

son, that their powers of reaction are proportionately greater, as is the force of their circulation. In them, consequently, there is less risk than in after life, of incurring headache and other unpleasant sensations, and those more serious consequences, which may attend a perseverance in the use of sea-bathing in adults of deficient vital powers.

There are, indeed, no diseases, whose removal depends more on the early and judicious adoption of what may be termed natural remedies, than these; for, although some classes of medicines are frequently found indispensable, it is very difficult to effect a cure without a timely combination of other agents; such agents being exercise, pure air, external warmth, suitably selected food, and bathing.

But, from what I have just observed on the employment of cold sea-bathing in childhood, it must not be inferred, that little caution is required in its use, in these cases; for, where the animal powers of children are much reduced, either by this, or other disorders, and more especially where the mesenteric glands are the seat of disease, such

a remedy can only prove prejudicial; and I strongly suspect, that material mischief has often arisen from its too indiscriminate use in scrofulous affections, which has tended to invalidate the efficacy of this most useful remedy.

A diseased state of the mesenteric glands in children, constitutes the most serious form of these disorders; and since it is frequently, more or less combined with external affections of a similar nature, and is so liable to be increased by an injudicious employment of cold sea-bathing, it may be desirable to notice it more particularly.

Its presence is at first indicated, by symptoms of indigestion, as headache, languor, loss, or morbid increase of appetite, with irregularity in the state of the bowels; these are succeeded by slight shooting pains, deeply seated, within the abdomen, and which, at first, only occur once or twice in the day, but gradually increase in frequency, and in severity; the abdomen begins to enlarge, and continues to increase in size, while other parts of the body diminish in the same proportion; the complexion is rendered peculiarly pale, and exhibits with unusual clearness, the va-

rious ramifications of the veins; the lips frequently appear swollen, and if the disease be far advanced, the features become shrunk. With these symptoms there is much listlessness, inactivity, and incapacity for motion, and, usually, great fretfulness and irritability of temper.

When, therefore, either in the absence, or presence of other scrofulous affections, the abdomen has become tumid, or feels in any degree tender on being pressed, or other symptoms above mentioned are exhibited, it is not safe to have recourse to cold sea-bathing, and water of a higher temperature should invariably be substituted.

In all the forms, indeed, of this complaint, it is most judicious to commence a course of bathing with water not below 85°, and to diminish its temperature with the increasing strength of the patient; and this is the more necessary, from the insidious progress of these affections, and the difficulty of ascertaining their real extent.

When there is no evidence of internal derangement, and the strength of the constitution has not become materially impaired, cold sea-bathing may of course be subsequently resorted to, and it will,

then, be generally found, not only to increase the strength of the patient, but to hasten the resolution of any indolent indurations or enlargements which may exist.

The warm bath is productive of similar effects; but from the more powerful tonic influence which cold sea-bathing generally exerts on the constitution of children, it is to be preferred, when it can be employed with safety.

Bathing is often too speedily relinquished in these complaints, and thus the great benefits which it is capable of imparting are imperfectly obtained; it being only by a steady perseverance, regulated by the extent of disease and by other circumstances, that reasonable expectations from this highly useful remedy can be realized.

Dr. Cheyne has observed, of mesenteric disease—“ I have evidently stopped its progress, by the use of the warm or tepid salt-water bath, by purgative medicines, animal decoctions, wine, proper clothing, and exercise in fine weather ;” and this, I believe to be the most effective system that can be generally adopted in every form of scrofula.

What has been said concerning exercise in indi-

gestion, applies even more powerfully in these cases; not only from the connexion subsisting between deranged digestive functions, and scrofulous disorders, but from the fact that in childhood, exercise is more indispensably requisite, than in the later periods of life, no less in re-establishing health when impaired, than in supporting it; it being impossible, without it, that perfect secretion and assimilation can be maintained; and equally so, therefore, that the animal powers can advance to their development and maturity.

The especial necessity for exercise in childhood, is shown by its before-mentioned influence on the secretions of the liver; and in childhood, this organ is much larger, in proportion, than in the after periods of life, and the serious effects produced by its derangement display themselves more immediately.

The extensive connexion which exists, anatomically, between this organ and the diaphragm, appears, as Mr. Carmichael has justly remarked, to have been intended, to obviate the evils likely to arise from a torpidity in its action, induced by a deficiency of bodily motion; for, by the constant and involuntary contractions and relaxations of the dia-

phragm, the healthy operations of the liver are facilitated; but when the liver is influenced by derangement or torpor, the power thus exerted by the diaphragm, becomes insufficient for the purpose; and the assistance of those muscles more under our control, is rendered requisite for its completion.

It is undoubtedly, also, to guard against the injurious consequences arising from an impaired action in this organ during youth, as likewise, to facilitate the process of all other secretions, and to establish a healthy state in the digestive functions, that children have been kindly endowed with that most salutary propensity, their unconquerable love of motion and activity.

Scrofula is, I am persuaded, more frequently called into action, by a deficiency of exercise, than by any other means whatever; and hence the numerous instances recorded by medical authors, in which children, who had previously appeared perfectly healthy, have, after having been during some time incarcerated in manufactories or other establishments equally prejudicial to their welfare, manifested the worst forms of this complaint.

In all these affections, the necessity for a due at-

tention to the nature of the food, and the state of the digestive functions is so great, that it is doubtful, if the perfect union of all other means can prove effectual, without it.

The general and simple principle is, to make use of that kind of sustenance which is most easily digested, most nutritious, and least liable to fermentation; although the proportion of nourishment required, can of course only be regulated by the peculiarities of the case, and the state of the system.

Very usually, scrofula is connected with a frame, which is delicate, susceptible to external impressions, and deficient in muscular tone and nervous energy, which circumstances become more marked, in proportion to the duration of the complaint; and it is this condition, which demands, and is most effectively counteracted by a liberal supply of nourishment, and even by the use of wine, with tonic remedies. Instances may nevertheless occur, in which the complaint exists in combination with a fulness of habit, by which latter it may seem to be favoured, as also by the accompanying constitutional irritability; and in these cases, although the

powers of the system may not be greater than before, a nutritious diet may be less suitable. The disorder may also occasionally appear, accompanied with fulness of habit, in children in whom there is really no other indication of deficient animal powers; which circumstances will demand a material modification in the treatment; but cases of these latter kinds are comparatively very rare, and it is these which most favour the doctrine of inheritance.

But, I have remarked, that debilitating causes of every kind have a tendency to excite this complaint, and that a combination of them alone, may produce it; as therefore an innutritious diet is amongst the most powerful of its exciting causes, there is too great reason for supposing, that it has long been a very erroneous and injurious practice, to interdict children from partaking of a liberal proportion of animal food, and to confine them, almost exclusively, to a vegetable and farinaceous diet; and this conclusion is rendered the more obvious, when we reflect on the before-mentioned operations demanded from the nutritive system in children, in whom, the surplus of nourishment is so usefully appropriated; and, on the deficiency of these pow-

ers, in those who are most delicate, and, consequently, the most predisposed to this disorder.

Not only is it well known, that animal food yields a larger proportion of nourishing particles than any other, but, general experience shows, that those delicate children, to whom it is somewhat liberally afforded, provided extremes be avoided, thrive more than others ; and, especially, if a suitable proportion of exercise be allowed.

It is also a highly interesting and important fact, that scrofula, like consumption, is rarely seen in the house of the butcher. Dr. Beddoes informs us, that, although consumption prevailed to so unequalled an extent in Bristol, that nearly half the deaths which occurred, arose from that disease, yet, he could scarcely detect an instance of the disorder amongst five hundred persons, who were engaged in this occupation. Dr. Withering has, also, noticed the comparative exemption which they enjoy. Dr. R. Pearson made similar enquiries, concerning those who were so employed at Birmingham ; Dr. Gibbings, at Cork ; Mr. Creaser, at Bath ; and several other medical writers, elsewhere ; and all of them, with the same result.

No less interesting and important enquiries of a similar nature have been instituted, concerning scrofulous disorders: and these, I think, with very few exceptions, are equally conclusive. Mr. Russell mentions the following example of the benefits arising from a nursing diet, in fortifying the system against the influence of these complaints; and it is far from being the only one of the kind which has occurred.

- The elder children in a gentleman's family, were reared agreeably to the precepts of the abstergious system, and became scrofulous at an early period of life. This distressing occurrence occasioned great vexation and alarm: and the parents, being people of good sense, determined to alter the system of management, and to try the effects of a fuller and more nutritious diet; the younger children, therefore, were all reared according to the opposite system, and being indulged in a more liberal allowance of food, had the good fortune to escape any appearance of scrofula."

Were the aid of analogy required, in illustration of the advantages of a certain proportion of animal food in childhood, when the nutritive system

has the body to form, and life to sustain, we should have it amply afforded in the young of most other animals; which, although destined, in after life, to be supported on vegetables, exclusively, are kindly endowed with an appetite for a more nutritious animal diet, either solid or fluid, at this important period of their existence.

What I have thus said of the advantages of an invigorating influence, afforded by diet, equally applies, therefore, to the similar agency, which the coast is so capable of imparting.

Sea air, independently of the other auxiliaries which are thus afforded, in the removal of these affections, is highly conducive to improvement from its mild and invigorating properties; but, from the very great importance of external warmth, it is obvious, that those situations which are most capable of affording it are always to be preferred; otherwise, as is very common, from the injudicious choice of a bleak and exposed aspect, the benefits derivable from the coast, must be materially diminished, or counteracted.

In those cases, where bodily exercise cannot be taken, as also in early infancy, the greatest bene-

fits may be derived from general dry friction of the body ; and more particularly, when employed in alternation with frequent immersion in tepid sea-water.

Scrofulous affections are among those, in which the regular action of the bowels is of the highest importance ; but in them, it is no less apparent, that the employment of purgative medicines may be easily carried to that extent and frequency, which will tend, rather to exhaust, than to increase the already weakened powers of the patient ; there are, however, no cases in which purgative or aperient medicines are not found to be beneficial, although the precise object of their exhibition will differ materially, according to the peculiar form of the disease.

These disorders are frequently combined with an habitually confined state of the bowels, which greatly favours their progress, and impedes their cure ; and this condition seems, sometimes, to be connected with constitutional fulness of habit.

In all such cases, purgative or aperient medicines become especially requisite ; and in the latter capacity, sea-water, which, from the earliest ages,

has been esteemed an important remedy in these complaints, may be administered with very great advantage; the intention, generally, being, not so much to produce a powerful operation on the alimentary canal, as one which is gentle, and continued, by which the action of the biliary and other secreting organs, may be regularly and mildly assisted.

There are no purgative medicines, even of the most simple kind, whose use can be better regulated than sea water; and there are none, whose frequent employment is less likely to be followed, either by languid action, or by that state of constitutional excitement, or, I may add, inflammation, which, not unfrequently, succeeds the too frequent use of more powerful purgatives.

Calomel, notwithstanding its advantages, is, nevertheless, a medicine of this kind; for although, in these, as in so many other complaints, it is one of the most useful and eligible that can be employed, not more from its purgative, than from its other properties, it is yet one whose use cannot, with propriety, be very frequently repeated, or long persevered in. It is therefore an important consideration, that

THE PECULIAR PROPERTIES OF SEA WATER are such, as to allow of its more constant exhibition, either alone, or in admixture with chalk, or with other medicines, whose peculiar properties may indicate the utility of their employment.

RICKETS.

Rickets is another disease, which arises from circumstances precisely similar to those which induce the former complaint: it also, usually, manifests itself at a very early period, and is often, first discovered, when the constitution has suffered from the attack of some previous affection.

MANY of the symptoms of Rickets, are, also, very nearly allied to those which have been last mentioned, and they often powerfully indicate a deranged state of the digestive functions; the countenance becomes pale, and inanimate, the abdomen more or less enlarged, and the other symptoms which originate from this source, usually appear: and, if the progress of the disorder be not

timely checked, they are very commonly succeeded by hectic characters.

Rickets is also, not unfrequently, connected with the presence of scrofula; which combination may depend on both complaints being occasioned by the same causes; each, almost invariably, producing the same organic derangements; particularly those of the mesenteric glands. The tendency, however, which so constantly prevails, in rickets, towards an incurvation and distortion of the various bones, is its most marked peculiarity; and it arises from a deficiency of the earthy matter deposited within them.

It is probable that this effect, results from an unhealthy action in the glandular and secreting system; although many authors have supposed it to depend on the solution of the calcareous particles already formed, by a superabundance of acidity in the blood; but, if this supposition were correct, we might, perhaps, expect to see greater benefit, more commonly and extensively afforded, than it is found to be, from the exhibition of the various antacid and earthy substances, which are so frequently administered.

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As in the former manner, the principal remedies to be resorted to in the incipient stages of this complaint are those by which the constitutional vigour of the child affected may be most effectually increased, and the healthy action of the secreting organs restored or established.

The warm and mild sea-water baths are, therefore, as useful in this case as in the preceding disease; and the same observation equally applies to sea-air, climate, warmth, and nutritious food; purgatives, and amongst them sea-water, are also highly advantageous on the principles I have before mentioned; and, independently of other medicines which particular circumstances may demand, these means, combined with frictions, when properly conducted and persevered in, are, in the incipient stages of rickets, almost invariably productive of the most decided benefit.

MARASMUS.

CASES frequently occur in children, in which many of the symptoms of a diseased state of the mesenteric glands are present, although they be not attended with those peculiar external or internal characters which distinctly characterise either rickets or scrofula ; in these cases, the appetite becomes unnaturally increased or diminished, the digestive faculties impaired, the bulk of the body decreases, the muscles lose their firmness, the countenance is rendered pale and inanimate, the spirits are depressed, and the skin is dry and constricted. Children, so affected, are also, often troubled with thirst, they are fretful, their sleep is more or less disturbed, their bowels are irregular, and their powers are greatly enfeebled.

All these symptoms may be traced to the state of the alimentary canal, the disease being usually, like the dyspepsia of adult age, dependent on derangement of the digestive functions ; sometimes it results from worms, or from the nature of the food employed, but it is more frequently in-

duced by an imperfect action in the liver ; arising, from the want of due bodily exercise, from the influence of the atmosphere, or from various other causes connected with the situation in which the child resides ; for this disease prevails most in close and crowded towns, and in those whose atmosphere is cold, humid, or impure ; and, under these circumstances, it is scarcely less prevalent than scrofula itself.

It is obvious, therefore, that as disorders of this kind so frequently originate from causes which conduce equally towards the production of scrofulous affections, they are, like them, capable of being benefited by the same means.

Usually, in the earlier periods of marasmus, the bowels are habitually torpid ; apparently owing to the state of congestion and loss of secreting power in the liver, to which I have just alluded. A course of mild purgative medicines, for some time persevered in, is consequently, of the greatest utility ; by its power of establishing a healthy action in the functions of this gland, and in those of the digestive organs generally.

But, as this degree of torpor, and its conse-

quences, are very frequently induced by a sympathetic influence communicated to the alimentary canal, and chylopoetic viscera, by derangement in the functions of the skin, arising from atmospheric causes; it is obvious, that purgative medicines can, in such cases, only be considered as auxiliaries in the removal of the disease; and that change of situation becomes indispensable to the successful operation of the remedies employed, or to the alteration, which is required to be effected in the system.

Marasmus is another disease, in which warm and cold sea-water bathing are very advantageous, from their powers of restoring muscular and nervous energy, and from the sympathetic influence which they exert on the alimentary canal, and on the liver, and other glands; whose healthful action is of such immediate importance to digestion and assimilation.

It will, however, of course, be advisable to omit the employment of cold bathing while the bodily powers of the child are materially diminished, and until aperient medicines have been duly premised, when its effects will be far more beneficial. But,

the warm-bath may be had recourse to with advantage, in almost any stage, either of this complaint, or of others, in which the digestive system is principally concerned; and it will materially assist the operation of aperient or other medicines. Chalybeate, or vegetable tonics, may be, also, ultimately employed with the greatest success, in marasmus, as in most diseases of a similar nature.

SPASMODIC DISEASES.

A languid or disordered action of the bowels, in children, from whatever cause it may arise, is often productive also of distressing affections of a nervous character; some of which are, notwithstanding, much less dangerous, than they are obstinate, and difficult to overcome.

Such is particularly the case with Chorea Sancti Viti, or St. Vitus's dance, which so commonly originates from this source, and is often so tedious in its progress; but, there are few states of this disease, which will not give way, much earlier, to the employment of bathing, aided by the stimulating

effects of the saline ingredients of sea-water, in combination with a course of purgative, tonic, or other remedies, than by the curative influence of either means, when alone had recourse to.

Epilepsy, also, has its origin in a peculiar state of nervous debility and excitability; it is very often occasioned by the same causes as those which produce the former complaint, and it is always fostered by them, as by every other cause, which tends to diminish the bodily powers, or to add to the irritability of the system. Epilepsy is, therefore, amongst the diseases of this class, which are most likely to be benefited by the invigorating effects resulting from bathing, sea air, and exercise, in combination with purgative and tonic medicines.

Independently of the purgative influence of sea-water, it is very frequently, rendered of unexpected advantage, to children who labour under a deranged state of the digestive organs, from the power which it possesses of dispelling worms; more

especially the ascarides; and, for this purpose, a small quantity, taken a few mornings in succession, is rarely ineffectual.

In most cases, where it is advisable to employ sea-water as an internal medicine, the addition of a little milk will render it much less disagreeable to the taste of young children than otherwise, without making it liable to occasion any inconvenience.

HOOPING COUGH.

THERE is no disease more generally benefited by change of air, than hooping cough; although it is often extremely difficult to explain the manner in which the advantages, thus obtained, are imparted. A child who labours under this complaint, may be removed, during several weeks in succession, from one place to another, and may derive the most marked benefits from each, although nothing evident in the atmosphere may offer the least clue, towards an explanation of the cause of this amendment.

But, as before observed, on a removal from inland to coast situations, the causes of improvement are sufficiently obvious, since a sea atmosphere differs so materially from that of the land, in its physical effects on the lungs; owing to its greater humidity and density, and to other properties, all of which are so highly salutary, in pulmonic complaints.

I have already mentioned the necessity for a certain combination of moisture in the atmosphere, in order that it be easily respired when derangement exists in the organs of respiration; and this circumstance may be yet more evidently inferred, from the advantages daily derived, in pulmonic affections, from the inhalation of steam; a practice often resorted in our own country, but more commonly abroad. In the West Indies, for example, we are assured, that it is customary to send those negroes who evince symptoms of pulmonic disease, into the boiling-houses, which are constantly filled with vapour; and that by remaining in them for some time, they become freed from their complaints.

But, on whatever cause the advantages of sea-air

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chiefly depends. It has been considered, by many writers, as almost a specific in the disease under consideration : and, although it be not invariably successful, its effects are, in many instances, so decided, as almost to entitle it to that appellation.

Whooping cough may assume either mild, or very alarming symptoms : and as the former usually characterise the complaint, it is frequently entrusted to the operation of remedies which are most easily obtained : or its removal is left altogether to the curative influence of time. This is, however, a very unsafe practice : and the fact of its being, occasionally, productive of very serious consequences, sufficiently indicates the attention which it invariably demands.

This disease is certainly communicated by some peculiarity in the atmosphere, too subtle in its properties to be detected, and which, like other contagious effluvia, is productive of its own specific effects. The complaint, like most other affections of the chest, commences with occasional coughing, more or less febrile irritation, and an increased action in the vessels ; which symptoms continue to increase, in proportion to the severity of

the disorder. The cough, having sooner or later, acquired its peculiar character, is, then, readily occasioned by any cause which is capable of exciting the circulation within the lungs, as by running, walking, crying, speaking, as also, by fear, joy, or any other sudden emotion of the mind; and changes in the wind, and temperature, no less affect children in this disorder.

In severe cases, the cough is highly distressing; and from the violent effects it produces on the constitution, in consequence of the impediment it causes to the circulation, by the spasmodic contraction of the various muscles of respiration, it, not unfrequently, lays the foundation of other diseases of a very serious nature; and even in cases, which are not in themselves severe, if these symptoms be of long continuance, the child usually becomes very much weakened; the weakness being frequently indicated by a deposition of fluid about the feet and ancles, and by various other symptoms of debility.

The very tardy progress, of hooping cough is its most unfortunate character; as it often continues during several months in succession, with-

out any decided remission in the severity of its symptoms; this disease, also, very commonly, suffers relapses from exposure to cold, or from other accidental causes, whence all the symptoms are renewed, at a period when there was every reason to hope that they were almost overcome.

The complaint is most to be feared, when it occurs in children whose constitutions are naturally weak, or have been impaired by the existence of some previous disorder; and also, when the cough acquires its peculiar sonorous character, very soon after the first appearances of indisposition.

The phenomena of hooping cough appear to arise from an inflammation of a peculiar kind, connected, as in some of the preceding diseases, with the delicate membranous expansion which lines the various ramifications of the bronchial tubes and air-cells; attended with an unusually great secretion of fluid within them; which fluid, it is probable, has become altered in its qualities.

As in asthma, this secretion is, generally, in a great measure, removed, at the termination of each paroxysm of coughing; and there is, I think, little doubt, that the irritation it produces, is the usual

exciting cause of the attacks; particularly of those which occur during the night, at which time they are, almost invariably, more frequent and severe than at any other; although the convulsive action may be induced from habit, by other causes of excitement suddenly experienced.

In general, the inflammatory tendency seems to be chiefly confined to the bronchial cavities; but, in severe cases, it often assumes a more positive character, and becomes more widely extended, when, in addition to the usual symptoms of hooping-cough, those of true pulmonic inflammation are exhibited, accompanied with a considerable degree of fever.

From the whole character, therefore, of hooping cough, it is manifestly a disorder which requires strict observance during its progress, and one which may, occasionally, demand measures of an active kind to counteract its effects; and in no case can it, with safety or propriety, be left to effect its own removal.

In its earlier stages, it is also equally evident, that, as it is always attended with more or less of a febrile and inflammatory tendency, those remedies,

which are best adapted to subdue this, and are proportioned to the violence of the symptoms, and to the powers of the patient, are the most likely to be followed by favourable results. Medicines, which are calculated to induce sickness, are, also, of the greatest utility in this disease, by freeing the lungs from that fluid which may have accumulated within them; and, by allaying that irritation which is excited by this secretion.

When, however, as so very frequently happens, hooping-cough will not give way to the most judicious employment of these, or other remedies, but continues to harass the patient during months in succession; and when the repeated recurrence of the distressing cough, appears to be more dependent on the extreme susceptibility of the parts concerned, to the impressions of external causes, than on any existing inflammatory action, there is not any measure, which can be adopted with so great a prospect of success, as a removal to some sheltered situation on the coast.

And, although, when the inflammatory symptoms of the disease have been, in some degree, allayed, such a practice will be found invariably

beneficial, it is more particularly to be recommended for delicate children ; or when the disease appears a few years later in life ; as its protracted influence is then more likely to call into action, or even to lay the foundation of pulmonic disorders of a more dangerous kind.

MEASLES.

Several of the eruptive diseases of children, attended with fever, as small-pox, measles, and scarlatina, are not in themselves more to be feared, than those disorders which they occasionally leave in their train ; but from none do these effects so frequently arise, as from Measles ; this being a disease, of which it has been long remarked, that “if there be a tendency to any local affection lurking in the system, nothing is so likely to call it into action.” The most dangerous of its sequelæ, are acute and chronic inflammatory affections of the lungs, and these are, unfortunately, amongst the most common.

It very frequently happens, that about the eighth day after an attack of measles, when the eruption has, in some measure, disappeared, the febrile symptoms become augmented, and are accompanied with cough and oppression at the chest, and a great degree of debility ; and it is at this time, generally, that fears may, with the greatest reason, be entertained, lest pulmonic affections of a serious character, be induced ; and more especially, since the deficiency in the bodily powers already existing, may render it unsafe to attempt their removal, by measures of so active a nature as might otherwise be demanded.

But these attacks, even when most successfully treated, almost invariably, leave the lungs in a state of great susceptibility to renewed inflammatory action, from very slight causes ; and under such circumstances, the advantages afforded by a sheltered coast, are of the same importance, as if the disease had been occasioned by atmospherical influences exclusively ; and, particularly, as measles so usually occur during the more cold and severe months of the year.

The warm-bath, by its tonic and invigorating

effects, will be constantly found, as in the latter stages of hooping-cough, of very great utility in these cases; tonic, and purgative medicines, are, also, highly useful at these periods, as they are calculated, equally, to impart strength to the constitution; the former, by a peculiar and specific action, which it is very difficult to explain, while the latter, when properly employed, arrive at the same result, by their salutary operation on the alimentary canal, and by the stimulus which they impart to the absorbent and secreting systems.

DISEASES OF THE SKIN.

THESE are, sometimes, extremely troublesome complaints in children; and there is scarcely any class, which possesses so great a diversity of species; the difficulty, however, attending their removal, is, fortunately, confined to a few kinds only, as the great majority are subdued with comparative ease.

The origin of these affections, may generally be traced, either to irregularities in the state of

the digestive organs, to atmospherical causes, or to a combination of these; since the very delicate and irritable nature of the skin, in children, necessarily renders it much more exposed to the influence of such causes, than in the subsequent periods of life; and the sympathetic connexion subsisting between the state of the skin, and that of the bowels, becomes, therefore, in them, much more constantly, and evidently, exhibited.

The appearances, the extent, the previous symptoms, and the duration, of eruptive disorders, in children, are all exceedingly various; and they have led to very detailed classifications, on the part of medical authors; which arrangements have been rendered useful, by displaying more clearly their analogies, and their characters.

Dr. Hamilton has, however, arranged eruptive diseases, under two general divisions only, and, in a practical point of view, this is, perhaps, all that is required; those of the first division, being of a temporary nature, preceded by more or less indisposition, and being, usually, overcome with ease, by aperient and other remedies; while those of the second, assume a chronic form, appear periodically,

being commonly, unattended by any material constitutional derangement, requiring, also, a much more varied treatment, and being often very difficult to eradicate.

It was my intention to have described more particularly, the nature and character of some of these numerous complaints; but, I am prevented from doing so, in consequence of having already exceeded the proposed limits of the present volume.

In the removal of the diseases which belong to each of the before-mentioned divisions, the warm sea-water bath is usually found to be an auxiliary of very great utility; but, it is more particularly in the latter class, that its employment is of so much importance; there being few forms of chronic eruption, which may not be more or less benefited by frequent recourse to it; and, with the united operation of alterative medicines, adapted to the state and nature of the affection, its use presents to us a prospect of success, at least equal to that which is afforded, by any other combination of remedies with which we are acquainted.

In many cuticular disorders, it should be con-

joined with gentle frictions, if the state and progress of the disease admit of their employment ; and the circumstance of the warm sea-water bath being, not unfrequently, productive of the appearance of a temporary rash, or eruption on the skin, should not be considered as in any way contra-indicating its utility ; since this effect, so far from being prejudicial, may generally be regarded as a symptom of increasing energy in the system, and, consequently, of improving health.

I may lastly repeat, concerning the varied complaints of childhood, what I before observed, in reference to those of adult age ; that, in noticing, more especially, the preceding disorders, as being of a nature, likely to derive benefit from a residence on a sheltered coast, it is far from my idea, that the advantages thus afforded, are not equally important, in numerous other states or stages of disease.

And, in a more particular manner, is this the case, in the later periods of the severe inflammatory disorders of children, which complaints, so invariably, leave the constitution in a very enfeebled state, a condition, which, as the powers of the sys-

tem are often, with great difficulty recovered, occasionally remains, during the greater part, or the whole of their lives.

Under these, and many other circumstances, the utility of seeking the salutary influence of a sheltered coast, is too obvious to require further demonstration; but, to those children who reside in populous towns, and in other confined situations, it is of especial importance; since they are, so often, deprived of the means of deriving due constitutional vigour, from the operation of the atmosphere which they respire, or, of acquiring muscular strength, in the open air, by frequent, unrestrained, and active exercises.

It is with much regret, that I conclude the present volume, without yet being enabled to offer to the reader, the result of a series of experiments, undertaken, with a view to determine the proportions of mineral ingredients, which are contained in the native chalybeate waters of the Hastings coast. These chalybeates, as I have before had occasion

to remark, possess properties, which, in many complaints connected with diminished energy of the animal powers, are of the greatest importance. From the very rare combination, therefore, at Hastings, of their advantages, with those which are peculiar to the coast, it is my intention to take the earliest opportunity of submitting to the public, with the result of their analysis, some observations, on the application of mineral waters of this class, to those particular states of disease, in which, I conceive, the greatest benefits may be reasonably expected to arise from their employment.

THE END.

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